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Th15b

MEMORANDUM

Date: December 9, 2009

To: Commissioners and Interested Parties

From: Peter Douglas, Executive Director
Robert Merrill, District Manager – North Coast District
Melissa Kraemer, Coastal Program Analyst – North Coast District

Subject: **Addendum to Commission Meeting for Thursday, December 10, 2009**
North Coast District Item Th 15b, CDP No. 1-09-024 (City of Ferndale)

Staff is proposing to make certain changes to the November 20, 2009 staff recommendation on Coastal Development Permit Application No. 1-09-024. Since publication of the staff report, the applicant has informed staff that the proposed project necessitates permit issuance prior to the end of the calendar year (December 31, 2009) in order to secure the necessary funding for the proposed project. Special Condition Nos. 1 (Final Erosion & Runoff Control Plan), 3 (Final Debris Disposal and Construction Access, Staging, & Stockpiling Plans), and 4 (Revised Final Wetland Mitigation and Monitoring Program), as recommended in the November 20, 2009 staff recommendation, require various plans to be submitted prior to permit issuance. The applicant is requesting that these recommended conditions be modified slightly to allow for submittal of the various plans prior to commencement of construction, rather prior to permit issuance. This change would allow the required plans to be prepared as specified in the conditions while providing for the critical security of project funding. In addition, the applicant has requested that the restriction on the timing of grading activities relating to creating staging areas and constructing the headworks facility imposed by Special Condition Nos. 2 and 3 be modified to allow for grading and soil excavation to occur prior to June 15 and after October 15 if necessary. The reason for this requested change relates to the strict compliance timeline that the applicant is bound to by the Cease and Desist Orders issued by the North Coast Regional Water Quality Control Board, which requires that construction of the new headworks facility begin in the first quarter of the coming year (2010). Finally, the applicant informed staff of an error in the staff recommendation, which erroneously reported the number of residences served by the existing wastewater treatment facility as 1,500. In actuality, the facility serves only 600 residences (1,500 residents).

Staff agrees with these requested changes, which are incorporated into the following revisions to the staff recommendation. Staff continues to recommend that the Commission approve the project with the special conditions included in the staff recommendation of November 20, 2009, as modified by the revisions described below.

I. REVISIONS TO THE STAFF RECOMMENDATION

The revisions to the staff report dated November 20, 2009, including the modification of special condition language and related findings, are shown below. Text to be deleted is shown in ~~strikethrough~~; text to be added appears in **bold double-underline**.

- *Modify the text of Special Condition Nos. 1 through 4 on pages 8-14 as follows:*

1. Final Erosion & Runoff Control Plan

(A) **PRIOR TO ~~ISSUANCE OF~~ COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a final plan for erosion and runoff control.

(1) The plan shall demonstrate that:

(a) Runoff from the project site shall not increase sedimentation in coastal waters and adjacent wetland habitats;

(b) Runoff from the project site shall not result in pollutants entering coastal waters and adjacent wetland habitats;

(c) Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters and adjacent wetland habitats during the construction activities, including but not limited to the use of relevant BMPs as detailed in the California Stormwater Best Management Practices Handbooks **for Construction;** (see http://www.cabmphandbooks.com) including, but not limited to, EC-1–Scheduling, EC-2–Preservation of Existing Vegetation, **EC-6–Straw Mulch, EC-7–Geotextiles & Mats, EC-9–Earth Dikes & Drainage Swales,** EC-12–Streambank Stabilization, SE-1–Silt Fence &/or SE-9–Straw Bale Barrier, **SE-4–Check Dams, NS-8–Vehicle & Equipment Cleaning,** NS-9–Vehicle & Equipment Fueling, NS-10–Vehicle & Equipment Maintenance & Repair; WM-1–Material Delivery & Storage, **WM-3–Stockpile Management,** ~~and~~ WM-4–Spill Prevention & Control**, WM-5–Solid Waste Management, and WM-8–Concrete Waste Management**).

(d) The plan shall be consistent with the requirements of all other special conditions, including but not limited to Special Condition Nos. 2 and 3.

(2) The plan shall include, at a minimum, the following components:

(a) A schedule for the installation and maintenance of appropriate construction source-control BMPs to prevent the entry of stormwater run-off into the construction site and the entrainment of excavated materials into run-off leaving the construction site;

(b) A schedule for the installation, use, and maintenance of appropriate construction materials handling-and-storage BMPs to prevent the entry of polluted stormwater run-off from the completed development into coastal waters; and

(c) An on-site spill prevention and control response program, consisting of BMPs for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from entering coastal waters.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. Construction Responsibilities

The permittee shall comply with the following construction-related requirements as well as the mitigation measures proposed under the March 2009 Mitigation and Monitoring Plan (attached as Exhibit No. 8):

(A) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or wetlands, except within staging areas and construction easements approved pursuant to Special Condition No. 3. Any debris accidentally discharged into coastal waters shall be recovered immediately and disposed of properly;

(B) Any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier, in accordance with Special Condition No. 3;

(C) ~~All grading activities~~ **Replacement of the outfall pipe at Francis Creek** shall be conducted during the dry season period of June 15 through **October 15** ~~November 30; any grading activity conducted between October 16 and November 30 shall be subject to the following conditions:~~

~~(1) All work shall cease upon the onset of precipitation at the project site and shall not recommence until the predicted chance of rain is less than 50 percent for the~~

~~Ferndale area portion of the Redwood Coast segment of the National Weather Service's forecast for Northwestern California;~~

~~(2) The work site(s) shall be winterized between work cessation periods by installing stormwater runoff and erosion control barriers around the perimeter of each construction site to prevent the entrainment of sediment into coastal waters; and~~

~~(3) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use;~~

(D) No construction shall occur within coastal waters or flowing stream channels;

(E) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(F) Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 5 and/or mulched with weed-free rice straw;

(G) Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas only;

(H) Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call. Any accidental spills shall be rapidly contained and cleaned up;

(I) Silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional siltation barrier materials shall be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur;

(J) Prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction, and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes; and

(K) No riparian vegetation shall be removed along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

3. <u>Final Debris Disposal and Construction Access, Staging, & Stockpiling Plans</u>

(A) **PRIOR TO ~~ISSUANCE OF~~ <u>COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY</u> THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a final plan detailing

the locations of all proposed construction activities, construction access, and materials storage and staging areas, as well as proposed disposal locations.

(1) The final plan shall demonstrate the following:

(a) No excavated materials to be removed shall be temporarily placed or stored during grading activities where it may be subject to entering wetlands or other coastal waters, except within designated staging areas;

(b) Erosion control techniques shall be implemented around the temporarily stored spoils material;

~~(c) Excavated materials removal activities shall not occur during the rainy season consistent with Special Condition No. 2;~~

(~~d~~**c**) All staging areas and construction easements to be located in grazing lands shall be limited to the locations and sizes specified in the project description (see Finding IV-B); and

(~~e~~**d**) Upon completion of project activities in the area ~~and prior to November 15 of each year during project construction~~, all temporarily disturbed grazing lands (including but not limited to temporary staging areas, stockpiling areas, and access roads) shall be decompacted and reseeded, as needed, in compliance with Special Condition No. 5.

(2) The plan shall include, at a minimum, the following components:

(a) A site plan drawn to scale showing all proposed locations for equipment access, staging, and stockpiling of materials, debris, and waste;

(b) A schedule for removal of all debris; and

(c) A narrative plan describing all proposed measures for restoring seasonal wetland areas disturbed by temporary construction easements and staging and stockpiling areas.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. Revised Final Wetland Mitigation & Monitoring Program

(A) **PRIOR TO ~~ISSUANCE OF~~ COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a revised final detailed wetland mitigation and monitoring program that has been designed by a qualified biologist or restoration ecologist. The revised final wetland mitigation and monitoring program shall substantially conform to the document titled "Ferndale Wastewater Treatment Plant Wetland Mitigation and Monitoring Plan City of Ferndale, California"

prepared by Manhard Consulting and dated November 2009 (Exhibit No. 9), except that the revised final plan shall include the following additions and/or changes:

(1) Performance standards that will assure achievement of the mitigation goals and objectives set forth Finding IV-D-3-b ("Net Loss of Wetland Habitat") and in the "Ferndale Wastewater Treatment Plan Wetland Mitigation and Monitoring Plan City of Ferndale, California" prepared by Manhard Consulting and dated November 2009, including, but not limited to, (a) restoration to pre-construction conditions all grazing lands temporarily impacted by project construction; (b) the creation of a Palustrine emergent wetland at least 1.43-acres in size to compensate for 0.65-acre of permanent seasonal wetland impacts and 0.03-acre of permanent herbaceous riparian wetland impacts; and (c) the objective that the mitigation wetlands shall exhibit "more functions and values" than the impacted wetlands, including those proposed on pages 14-15 of the referenced wetland mitigation and monitoring plan by Manhard Consulting.

(2) Provisions for monitoring at least the following attributes at the permanent wetland mitigation site during each monitoring year: (a) percent cover of hydrophytic vegetation; (b) percent cover of native vegetation; (c) plant species diversity; (d) seasonal variation in site hydrology; (e) hydrologic variation across different site elevations; (f) frequency, duration, and extent of inundation at the site; (g) matrix and chroma characteristics in the upper 18 inches of soil; (h) redox features in the upper 18 inches of soil; (i) presence of organic matter in the substrate; and (j) buffer area vegetation cover, vegetation diversity, and overall effectiveness. Performance standards to be developed shall clearly identify quantifiable attributes to be achieved, the condition or level that defines success, and the period over which the success must be sustained.

(3) Provisions for monitoring the temporarily impacted grazing lands, including the 14,700-square-foot construction staging area, 0.7-acre of construction easements, and the 1,800-square-foot water line installation area on APN 100-162-28, and provisions for monitoring at least the following attributes in these areas: vegetation coverage and density shall be monitored to assess whether the temporarily impacted areas achieve a level of coverage and density equivalent to pre-construction conditions within one year of completion of construction activities.

(4) Provisions for submittal within 30 days of completion of the initial wetland mitigation work (at the permanent wetland mitigation site) of (a) "as built" plans demonstrating that the initial mitigation work has been completed in accordance with the approved wetland mitigation and monitoring program, and (b) an assessment of the initial biological and ecological status of the "as built" wetland mitigation area. The assessment shall include an analysis of the attributes that will be monitored pursuant to the program, with a description of the methods for making that evaluation.

(5) Provisions for installing fencing and signage (e.g., "No Trespassing" and "Permanent Wetland Mitigation Area" signs) on the west side of the permanent wetland mitigation buffer area between the proposed effluent holding basin and the mitigation area.

(6) Provisions for removal of the proposed irrigation infrastructure for the wetland mitigation area upon completion of the monitoring period.

(7) Provisions to ensure that the wetland mitigation sites (both the temporarily impacted grazing lands and the permanent wetland mitigation area) will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site(s) does not meet the goals, objectives, and performance standards identified in the approved final wetland mitigation and monitoring program.

(8) Provisions for submittal of annual reports of monitoring results to the Executive Director by December 31 of each monitoring year for the duration of the required monitoring period, beginning the first year after submission of the "as-built" assessment. Each report shall include copies of all previous reports as appendices. Each report shall also include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the mitigation efforts in relation to the performance standards.

(9) Provisions for submittal of a final monitoring report to the Executive Director at the end of the five-year reporting period. The final report must be prepared in conjunction with a qualified biologist or restoration ecologist. The report must evaluate whether the mitigation sites conform to the goals, objectives, and performance standards set forth in the approved final wetland mitigation and monitoring program. The report must address all of the monitoring data collected over the monitoring period.

(B) If the final report indicates that the wetland mitigation program has been unsuccessful, in part or in whole, based on the approved goals and objectives set forth in the approved plan, the permittee shall submit a revised or supplemental wetland mitigation and monitoring program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in the approved plan. The revised wetland mitigation and monitoring program shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

(C) The permittee shall monitor and remediate the restoration site in accordance with the approved wetland mitigation and monitoring program. Any proposed changes from the approved monitoring program shall be reported to the Executive Director. No changes to the approved monitoring program shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines no amendment is legally required.

- *Modify the text of the "Environmental Setting and Background Information" Finding No. IV-A on page 17 as follows:*

The existing WWTF treats municipal wastewater from approximately ~~1,500~~ **600** residences **(1,500 residents)** in **and adjacent to** the City of Ferndale, which is entirely outside of the coastal zone, as well as a small unincorporated area (known as Arlynda Corners) of approximately 20 residences outside the City limits within the coastal zone immediately surrounding the WWTF location. The WWTF discharges treated effluent seasonally into the Salt River via Francis Creek. The North Coast Regional Water Quality Control Board (RWQCB) permits the discharge of treated wastewater through the National Pollution Discharge Elimination System (NPDES). The RWQCB administers water quality protections found in the federal Clean Water Act (CWA), which is managed by the U.S. Environmental Protection Agency in addition to supplementary State regulations. The CWA established a framework for regulation of municipal and industrial discharges under the NPDES program. The CWA requires dischargers to obtain a permit that establishes effluent limits and specifies monitoring and reporting requirements.

- *Modify the text of the "Planning & Siting New Development and Publicly-Owned Wastewater Treatment Works" Finding No. IV-C on page 24 as follows:*

The existing Ferndale wastewater treatment facility (WWTF) serves approximately ~~1,500~~ **600** residences **(1,500 residents)** ~~of~~ **in and adjacent to** the City of Ferndale**, including** ~~and~~ approximately 20 residences in a small unincorporated area of Humboldt County known as Arlynda Corners in the immediate vicinity of the treatment facility (see Exhibit No. 2). Except for the approximately 20 residences served in the Arlynda Corners area, the majority of the service area is entirely outside of the coastal zone. Thus, approximately ~~99~~ **97**% of the service area is outside the coastal zone and ~~1~~ **3**% of the service area is within the coastal zone.

- *Modify the text of the "Feasible Mitigation Measures" section of Finding No. IV-C on pages 29-31 as follows:*

Potential adverse impacts to the water quality of Francis Creek and surrounding wetland habitats could occur in the form of runoff originating from the development site that is allowed to drain toward these areas, which could contain entrained sediment and other pollutants that would contribute to degradation of the quality of coastal wetlands and waters. Sedimentation impacts from runoff would be of most concern during construction activities. Although the project description states that such impacts would be prevented and minimized by utilizing best management practices for erosion and sediment control and preparing and implementing a stormwater pollution prevention plan (SWPPP) during construction, at this point no measures have been identified for managing exposed soils, controlling the deposition of pollutants, or for cleaning up and preventing pollutant spills leaving the construction site in runoff. Therefore, the Commission attaches **Special Condition No. 1**, which requires submittal of a final erosion and run-off control plan prior to ~~permit issuance~~ **commencement of construction**. The plan must demonstrate that (a) run-off from the project site must not increase sedimentation in coastal waters, (b) run-off from the project site must not result in pollutants entering coastal waters, (c) best management practices (BMPs) must be used to prevent the entry into coastal waters of

polluted stormwater runoff during construction activities as well as from the completed development, and (d) the plan is consistent with the requirements of all other special conditions. The plan also is required to include an on-site spill prevention and control response program to address any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from construction equipment and to prevent any such releases from entering coastal waters.

In addition, the Commission attaches **Special Condition No. 2** to specify various construction responsibilities that must be implemented to protect adjacent aquatic habitat and water quality. Special Condition No. 2 requires the applicant to undertake the development pursuant to certain construction responsibilities, including, but not limited to, the following:

(a) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or wetlands, except within staging areas and construction easements approved pursuant to the requirements of Special Condition No. 3, discussed below;

(b) Any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier, in accordance with Special Condition No. 3,

(c) ~~All grading activities~~ **Replacement of the outfall pipe at Francis Creek** shall be conducted during the dry season period of June 15 through **October 15** ~~November 30; any grading activity conducted between October 16 and November 30 shall be subject to the following conditions: (1) All work shall cease upon the onset of precipitation at the project site and shall not recommence until the predicted chance of rain is less than 50 percent for the Ferndale area portion of the Redwood Coast segment of the National Weather Service's forecast for Northwestern California; and (2) The work site(s) shall be winterized between work cessation periods by installing stormwater runoff and erosion control barriers around the perimeter of each construction site to prevent the entrainment of sediment into coastal waters; (3) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use;~~

(d) No construction shall occur within coastal waters or flowing stream channels;

(e) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(f) Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 5 (see below) and/or mulched with weed-free rice straw;

(g) Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas only;

(h) Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered

first-response, professional hazardous materials clean-up/remediation service shall be locally available on call. Any accidental spills shall be rapidly contained and cleaned up;

(i) Silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional siltation barrier materials shall be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur;

(j) Prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes; and

(k) No riparian vegetation shall be removed along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

Finally, the Commission attaches **Special Condition No. 3** requiring the applicant to submit final debris disposal and construction access, staging, and stockpiling plans prior to ~~permit issuance~~ **commencement of construction** for the Executive Director's review and approval. The final plans must demonstrate that (a) no excavated materials to be removed will be temporarily placed or stored during grading activities where it may be subject to entering wetlands or other coastal waters, except within designated staging areas; (b) erosion control techniques will be implemented around the temporarily stored spoils material; (c) ~~excavated materials removal activities will not occur during the rainy season consistent with Special Condition No. 2; (d)~~ all staging areas and construction easements to be located in grazing lands will be limited to the locations and sizes specified in the project description (see Finding IV-B); and (~~e~~**d**) upon completion of project activities in the area ~~and prior to November 15 of each year~~, all temporarily disturbed seasonal wetlands (including but not limited to temporary staging areas, stockpiling areas, and access roads) will be decompacted and reseeded, as needed, with a mix of regionally appropriate native grasses and/or noninvasive agricultural species.

- *Modify the text of the "No Net Loss of Wetland Habitat" section of Finding No. IV-C on page 36 as follows:*

Therefore, the Commission attaches **Special Condition No. 4**. This condition requires that prior to ~~permit issuance~~ **commencement of construction** the applicant submit for the Executive Director's review and approval a revised final wetland mitigation and monitoring program. The revised program should substantially conform to the submitted wetland mitigation and monitoring plan (Exhibit No. 9), except that various specified changes and/or additions must be included to (1) clarify performance standards, (2) specify provisions for monitoring various attributes at both the permanent mitigation site and temporarily impacted grazing lands, (3) require submittal of "as-built" plans within 30 days of completion of the initial mitigation work to ensure that the work has been completed in accordance with the approved final mitigation and monitoring program; (4) require the installation of fencing and signage on the west side of the mitigation area; (5) require removal of the proposed irrigation infrastructure upon completion of

the monitoring period; and (6) ensure that the wetland mitigation site will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site(s) does not meet the goals, objectives, and performance standards identified in the approved final wetland mitigation and monitoring program. If the final report indicates that the wetland mitigation program has been unsuccessful, in part or in whole, based on the approved goals and objectives set forth in the approved plan, the permittee must submit a revised or supplemental wetland mitigation and monitoring program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in the approved plan. The revised wetland mitigation and monitoring program shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

- *Modify the text of the "Impacts to Adjacent Wetland Habitats from Construction Activities" section of Finding No. IV-C on pages 36-37 as follows:*

Because the proposed work area abuts Francis Creek (to the east of the proposed staging area and to the north of the northern WWTF parcel) and grazing seasonal wetlands (to the west and south of the headworks parcel and adjacent construction easements), potential significant adverse impacts could occur to these adjacent wetland habitats if appropriate mitigation measures are not implemented. As discussed in the above sections, the Commission has attached various conditions to protect adjacent wetlands habitats. For example, **Special Condition No. 1** requires submittal of a final erosion and run-off control plan prior to ~~permit issuance~~ **commencement of construction** for the Executive Director's review and approval. The plan must demonstrate that run-off from the project site will not result in sediment or pollutants entering coastal waters or adjacent wetlands, and best management practices (BMPs) must be used to prevent the entry of polluted stormwater runoff into coastal waters and adjacent wetland habitats during the construction activities. Special **Condition No. 2-I** requires that silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional siltation barrier materials are to be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur. Additionally, **Special Condition No. 2-J** requires that prior to the commencement of construction, the work area be delineated, limiting the potential area affected by construction, and workers be educated about the limitations on construction. All vehicles and equipment are to be restricted to pre-established work areas and established or designated access routes. Furthermore, **Special Condition No. 2-K** prohibits the removal of any riparian vegetation along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

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Staff:	Melissa B. Kraemer
Staff Report:	November 20, 2009
Hearing Date:	December 10, 2009
Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-09-024**

APPLICANT: **City of Ferndale**

AGENT: Planwest Partners, Inc.

PROJECT LOCATION: On Port Kenyon Road between Market Street and California Street in an unincorporated area of Humboldt County just north of the City of Ferndale (APNs 100-161-008, 100-162-020, & -028).

PROJECT DESCRIPTION: Upgrade the City's existing wastewater treatment facility to meet water quality and waste discharge standards by (1) demolishing and removing existing structures and development, including an existing concrete walk and headworks building covering an approximate 3,340-square-foot area, a 355-square-foot wooden storage building, a 26-square-foot well house, a 30-square-foot shed, and existing discharge piping; (2) placing approximately 5,000 cubic yards of imported fill on the headworks parcel (across an approximately 0.7-acre area) to raise the existing grade by approximately 4 feet; (3) constructing a new 6,730-square-foot aeration basin, a 4,275-square-foot filter building (plus 720 square feet of associated paved stoops and concrete pads), a 720-square-foot garage, a 580-square-foot vaults pad, a 196-square-foot fuel/generator pad, and new 7-foot-

	high chain-link and barbed-wire perimeter fencing around the parcel to replace the existing deteriorated fencing; (4) replacing the existing influent pump station; (5) replacing two existing effluent outfall pipes at Francis Creek with one new 10-inch diameter effluent outfall pipe and 0.20-cubic yards of associated rock slope protection; (6) converting the existing aeration pond in part to (a) a stormwater basin for overflow during peak storm events and in part to (b) a portion of a wetland mitigation area; (7) converting the existing chlorine contact basin to a temporary holding tank for treated effluent; (8) installing an underground, approx-imately 900-foot-long 6-inch diameter HDPE water main pipe extension from an existing 6-inch line located along California Street to the new office building on the headworks parcel; and (9) installing utility lines in trenches along the existing road surface of Port Kenyon Road.
LOCAL PLAN DESIGNATION:	Public Facilities (PF) as designated in the Eel River Area Plan
LOCAL ZONING DESIGNATION:	Public Facilities – Rural (PF-2)
LOCAL APPROVALS RECEIVED:	City of Ferndale Adopted Mitigated Negative Declaration, April 2, 2009.
OTHER APPROVALS REQUIRED:	Department of Fish and Game; U.S. Army Corps of Engineers; North Coast Water Quality Control Board.
SUBSTANTIVE FILE DOCUMENTS:	Humboldt County Local Coastal Program

SUMMARY OF STAFF RECOMMENDATION

Staff recommends that the Commission approve with conditions this application for significant upgrades to the City of Ferndale's existing wastewater treatment plant.

The Ferndale Wastewater Treatment Facility (WWTF) is located on the gently sloping alluvial plain of the lower Eel River Basin, in an unincorporated area of Humboldt County north of the Ferndale city limits, near the inland edge of the coastal zone (Exhibit Nos. 1-2). The WWTF is located on two parcels along Port Kenyon Road between Market Street and California Street (Exhibit No. 3). The 9.5-acre parcel on the north side of the road (APN 100-161-008) contains an existing contact basin and treatment ponds,

and the 0.75-acre parcel on the south side of the road (APN 100-162-020) contains an existing headworks facility. Both parcels have "Public Facilities" (PF) land use and zoning designations in the Humboldt County certified LCP. Lands surrounding the project area are used for dairy operations, associated residences, grazing, and natural resources uses, and most are designated and zoned "Agriculture Exclusive."

The project area is located near the confluence of the Salt River and Francis Creek (Exhibit No. 2). The current hydraulic dysfunction of the Salt River impacts flooding, effluent discharge from the WWTF, and overall water quality. Historically, the Salt River's water flows were sufficient to provide the required dilution for discharge from the City's WWTF. However, flows have been reduced significantly due to sedimentation and to the fact that Williams Creek, the main Salt River tributary upstream of the WWTF, changed course in 1998 because of storm-caused debris blockage and now drains into the lower Eel River southeast of Fernbridge, thereby no longer contributing surface water flow to the Salt River. This flow diversion has significantly reduced the surface water volume available to dilute the City's treated wastewater discharge to the Salt River via Francis Creek. Francis Creek, which flows adjacent to both the headworks parcel and the northern boundary of the treatment pond parcel (see Exhibit No. 4), is a perennial stream with a small watershed. Flooding of lower Francis Creek has occurred annually for the past several years, and the portion of the creek adjacent to the northern boundary of the WWTF is a shallow channel and floodplain that has accumulated significant silt in recent years.

The existing WWTF treats municipal wastewater from approximately 1,500 residences in the City of Ferndale, which is entirely outside of the coastal zone, as well as a small unincorporated area (known as Arlynda Corners) of approximately 20 residences outside the City limits within the coastal zone immediately surrounding the WWTF location. Except for the approximately 20 residences served in the Arlynda Corners area, the majority of the service area is entirely outside of the coastal zone. Thus, approximately 99% of the service area is outside the coastal zone and 1% of the service area is within the coastal zone.

The WWTF discharges treated effluent seasonally into the Salt River via Francis Creek. Due to insufficient surface water flows in the Salt River and Francis Creek as discussed above, the City does not currently meet the Water Quality Control Plan for the North Coast Region ("Basin Plan") 100:1 receiving-water-to-effluent dilution requirement set in the City's National Pollution Discharge Elimination System (NPDES) permit. The failure to meet these standards is the basis for an (effluent) discharge Cease and Desist Order issued by the North Coast Regional Water Quality Control Board (RWQCB) on May 15, 2003 (and subsequently amended). The CDO includes a task list outlining a compliance timetable.

The City of Ferndale proposes to upgrade its Wastewater Treatment Facility (WWTF) by upgrading aging facilities, improving treatment and disinfection methods, and increasing the plant's efficiency (see Exhibit No. 5). All upgrades are designed to meet the standards

and modified waste discharge requirements of the RWQCB. The City is seeking funding through the USDA Rural Development Program to fund the proposed upgrades.

Coastal Act Section 30412 restrains the Commission's actions with regard to water quality issues, especially the development of publicly-owned wastewater treatment works, prohibiting the Commission from taking actions that would be in conflict with the State or Regional Water Quality Control Boards and limiting the Commission's determinations on the development of such treatment works within the coastal zone to issues regarding: (a) the siting and visual appearance of the treatment works; (b) geographic and temporal limits of service areas; (c) the timing of the use of capacity of treatment works for those service areas to allow for phasing of development; and (d) the sizing of treatment works as determined by development projections.

Because the existing WWTF primarily serves development outside of the coastal zone (within the City of Ferndale), and the proposed upgrades to the facility will not increase the capacity of the plant or expand its service area, whether the new plant is sized appropriately to provide wastewater treatment capacity that does not exceed the LCP-certified density levels within its certified area is not at issue. However, it is important for the Commission to review and authorize any future changes to the facility design to ensure that any proposed changes would continue to match treatment plant capacity with the sewage treatment needs generated by certified LCP development densities consistent with Section 30254 of the Coastal Act. Therefore, staff recommends Special Condition No. 8 to reflect the existing requirements under the Coastal Act that changes to the plant improvements and design would require authorization by the Commission. As conditioned, staff believes that the project is consistent with Coastal Act Section 30250(a) to the extent that the WWTF improvements have been designed and sized so as not to have significant adverse effects, either individually or cumulatively, on coastal resources from growth inducement that could result from an oversized treatment facility.

Staff further recommends inclusion of the following Special Conditions, among others, to protect water quality, adjacent sensitive habitats, and visual resources: (1) Special Condition No. 1 would require submittal of a final erosion and runoff control plan prior to permit issuance for the Executive Director's review and approval; (2) Special Condition No. 2 would require adherence to various construction responsibilities and proposed mitigation measures; (3) Special Condition No. 3 would require submittal of final debris disposal and construction access, staging, and stockpiling plans prior to permit issuance for the Executive Director's review and approval; (4) Special Condition No. 5 specifies standards and limitations for site revegetation; and (5) Special Condition No. 7 would impose restrictions on exterior materials and lighting of the proposed structures on the headworks parcel.

In addition, staff recommends Special Condition No. 4 to ensure that the project results in no net loss of wetland habitat. The project would have both temporary and permanent impacts on wetland resources. Necessary staging areas and construction easements would cause temporary impacts to approximately 1 acre of grazing lands, which potentially function as seasonal wetlands. Proposed WWTF improvements on the

existing headworks parcel and at the proposed outfall pipe at Francis Creek will cause permanent impacts (fill) to approximately 0.7-acre of wetlands (0.655-acre of seasonal wetlands and 0.03-acre of herbaceous riparian wetlands). The applicant has proposed to mitigate for the project's permanent wetland impacts by creating a wetland mitigation area on the WWTF parcel adjacent to Francis Creek, as proposed in Exhibit No. 9. Staff believes that the methods and procedures proposed in the wetland mitigation plan in general are appropriate, but in some cases they do not go far enough or fail to completely address certain factors to ensure that there is no net loss of wetland habitat as a result of the proposed project. Thus, staff recommends Special Condition No. 4 to require the applicant to submit a revised wetland mitigation and monitoring program for the Executive Director's review and approval prior to permit issuance. The revised program should substantially conform to the submitted wetland mitigation and monitoring plan (Exhibit No. 9), except that various specified changes and/or additions must be included, as specified in the special condition. If the final report indicates that the wetland mitigation program has been unsuccessful, in part or in whole, based on the approved goals and objectives set forth in the approved plan, the permittee must submit a revised or supplemental wetland mitigation and monitoring program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in the approved plan. As conditioned, staff believes that the filling and dredging of coastal wetlands is for an allowable use, that there is no feasible less environmentally damaging alternative, that feasible mitigation is required to minimize all significant adverse impacts associated with the filling of coastal wetlands, and that wetland habitat values would be maintained or enhanced, as is required by Sections 30231 and 30233 of the Coastal Act.

As conditioned, staff believes the proposed project is consistent with all applicable Chapter 3 policies of the Coastal Act and recommends approval of the project with special conditions.

The Motion to adopt the staff recommendation is found on Pages 7-8.

STAFF NOTES

1. Jurisdiction & Standard of Review

The proposed project area is bisected by the boundary between the retained coastal development permit jurisdiction of the Commission and the coastal development permit jurisdiction delegated to Humboldt County by the Commission through the County's certified Local Coastal Program. The boundary crosses the southwest corner of the headworks parcel, with the Commission's jurisdiction lying northward of the line and the County's lying southward of the line. The majority of the proposed development lies within the Commission's jurisdiction, with just the southwestern corner of the headworks parcel (APN 100-162-020), a portion of the proposed footprint for the new water main

extension (on APN 100-162-028), and a proposed 50-foot construction easement south of the headworks parcel lying within the County's jurisdiction.

The Coastal Act was amended by Senate Bill 1843 in 2006, effective January 1, 2007. The amendment added Section 30601.3 to the Coastal Act. Section 30601.3 authorizes the Commission to process a consolidated coastal development permit application when requested by the local government and the applicant and approved by the Executive Director for projects that would otherwise require coastal development permits from both the Commission and from a local government with a certified LCP. In this case, the Humboldt County Board of Supervisors adopted a resolution and both the applicants and the County submitted letters requesting consolidated processing of the coastal development permit application by the Commission for the subject project, which was approved by the Executive Director.

The policies of Chapter 3 of the Coastal Act provide the legal standard of review for a consolidated coastal development permit application submitted pursuant to Section 30601.3. The local government's certified LCP may be used as guidance.

2. Limitations on Commission's Actions Regarding Water Quality and Sewage Treatment Plants

The Coastal Act (California Public Resources Code Sections 30001 *et seq*.) at Section 30254.5 specifically prohibits the Commission, notwithstanding any other provision of law, from imposing any term or condition on the development of any sewage treatment plant which is applicable to any future development that the Commission finds can be accommodated by that plant consistent with the Coastal Act. Moreover, Section 30412(b) of the Act directs that the Commission shall not "…*modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights*." Sub-section (c) goes on to direct that any development constituting a treatment work providing service to any area within the coastal zone shall be reviewed by the Commission, and any permit it issues shall be determinative only with respect to the following aspects of the development: (1) the siting and visual appearance of treatment works within the coastal zone; (2) the geographic limits of service areas within the coastal zone which are to be served by particular treatment works and the timing of the use of capacity of treatment works for those service areas to allow for phasing of development and use of facilities consistent with this division; and (3) development projections which determine the sizing of treatment works for providing service within the coastal zone.

The Commission is further directed to make these determinations in accordance with the Coastal Act policies and make its final determination on a permit application for a treatment work prior to the final approval by the State Water Resources Control Board for the funding of such treatment works. Except as specifically provided in Section 30412(c), the decisions of the State Water Resources Control Board relative to the construction of treatment works shall be final and binding upon the Commission. In

addition, sub-section (d) of Section 30412 directs the Commission to provide or require reservations of sites for the construction of treatment works and points of discharge within the coastal zone adequate for the protection of coastal resources consistent with the provisions of the Coastal Act

In addition to the above-listed aspects of publicly owned wastewater treatment works located within the coastal zone that the Commission is specifically authorized to regulate under Sections 30230, 30231, and 30232 of the Coastal Act, the Commission is charged with assuring that water quality is protected and marine resources, with particular emphasis on the productivity, health, and population levels of its biological components, are maintained, enhanced, and where feasible restored. In addition, Coastal Act Section 30240 at sub-section (b) requires that all development adjacent to environmentally sensitive habitat areas and parklands be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

The State and Regional Water Control Boards have direct and/or delegated authority to regulate the chemical and thermal characteristics of surface and groundwater resources, specifically in controlling the presence and concentrations of chemical constituents within the aqueous environment, in the interest of protecting human health, biological resources, and other "beneficial uses" of the waters of the state and the nation. The Commission acknowledges the distinctions in these responsibilities and limits its actions accordingly to preclude conflicts in instances where a water board has made determinations on a development project that is also subject to the Commission's authority, particularly with regard to the setting of quantitative limitations on point and non-point source pollutants through the issuance of National Pollution Discharge Elimination Permits, waste discharge requirements, cease and desist directives, and cleanup and abatement orders.

The Commission's consideration of the development is: (1) undertaken pursuant solely to the authority duly granted to the Commission by the Coastal Act; (2) is limited to ensuring the approved development's conformance with the policies of the Coastal Act in a manner consistent with the limitations contained in Sections 30412(c) and 30254.5; and (3) in no way represents actions which modify, supplant, condition, or otherwise conflict with a determination of either the state or any regional water quality control board in matters relating to water quality or the administration of water rights.

I. MOTION, STAFF RECOMMENDATION, & RESOLUTION:

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-09-024 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment; or (2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See Appendix A.

III. SPECIAL CONDITIONS:

1. Final Erosion & Runoff Control Plan

(A) **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a final plan for erosion and runoff control.

(1) The plan shall demonstrate that:

(a) Runoff from the project site shall not increase sedimentation in coastal waters and adjacent wetland habitats;

(b) Runoff from the project site shall not result in pollutants entering coastal waters and adjacent wetland habitats;

(c) Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters and adjacent wetland habitats during the construction activities, including but not limited to the use of relevant BMPs as detailed in the California Stormwater Best Management Practices Handbooks (see http://www.cabmphandbooks.com) including, but not limited to, EC-1–Scheduling, EC-2 Preservation of Existing Vegetation, EC-12–Streambank Stabilization, SE-1–Silt Fence &/or SE-9–Straw Bale Barrier, NS-9–Vehicle & Equipment Fueling, NS-10–Vehicle & Equipment Maintenance & Repair; WM-1–Material Delivery & Storage, and WM-4–Spill Prevention & Control).

(d) The plan shall be consistent with the requirements of all other special conditions, including but not limited to Special Condition Nos. 2 and 3.

(2) The plan shall include, at a minimum, the following components:

(a) A schedule for the installation and maintenance of appropriate construction source-control BMPs to prevent the entry of stormwater run-off into the construction site and the entrainment of excavated materials into run-off leaving the construction site;

(b) A schedule for the installation, use, and maintenance of appropriate construction materials handling-and-storage BMPs to prevent the entry of polluted stormwater run-off from the completed development into coastal waters; and

(c) An on-site spill prevention and control response program, consisting of BMPs for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from entering coastal waters.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. Construction Responsibilities

The permittee shall comply with the following construction-related requirements as well as the mitigation measures proposed under the March 2009 Mitigation and Monitoring Plan (attached as Exhibit No. 8):

(A) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or wetlands, except within staging areas and construction easements approved pursuant to Special Condition No. 3. Any debris accidentally discharged into coastal waters shall be recovered immediately and disposed of properly;

(B) Any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier, in accordance with Special Condition No. 3;

(C) All grading activities shall be conducted during the dry season period of June 15 through November 30; any grading activity conducted between October 16 and November 30 shall be subject to the following conditions:

(1) All work shall cease upon the onset of precipitation at the project site and shall not recommence until the predicted chance of rain is less than 50 percent for the Ferndale area portion of the Redwood Coast segment of the National Weather Service's forecast for Northwestern California;

(2) The work site(s) shall be winterized between work cessation periods by installing stormwater runoff and erosion control barriers around the perimeter of each construction site to prevent the entrainment of sediment into coastal waters; and

(3) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use;

(D) No construction shall occur within coastal waters or flowing stream channels;

(E) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(F) Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 5 and/or mulched with weed-free rice straw;

(G) Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas only;

(H) Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call. Any accidental spills shall be rapidly contained and cleaned up;

(I) Silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional siltation barrier materials shall be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur;

(J) Prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction, and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes; and

(K) No riparian vegetation shall be removed along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

3. <u>Final Debris Disposal and Construction Access, Staging, & Stockpiling Plans</u>

(A) **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a final plan detailing the locations of all proposed construction activities, construction access, and materials storage and staging areas, as well as proposed disposal locations.

(1) The final plan shall demonstrate the following:

(a) No excavated materials to be removed shall be temporarily placed or stored during grading activities where it may be subject to entering wetlands or other coastal waters, except within designated staging areas;

(b) Erosion control techniques shall be implemented around the temporarily stored spoils material;

(c) Excavated materials removal activities shall not occur during the rainy season consistent with Special Condition No. 2;

(d) All staging areas and construction easements to be located in grazing lands shall be limited to the locations and sizes specified in the project description (see Finding IV-B); and

(e) Upon completion of project activities in the area and prior to November 15 of each year during project construction, all temporarily disturbed grazing lands (including but not limited to temporary staging areas, stockpiling areas, and access roads) shall be decompacted and reseeded, as needed, in compliance with Special Condition No. 5.

(2) The plan shall include, at a minimum, the following components:

(a) A site plan drawn to scale showing all proposed locations for equipment access, staging, and stockpiling of materials, debris, and waste;

(b) A schedule for removal of all debris; and

(c) A narrative plan describing all proposed measures for restoring seasonal wetland areas disturbed by temporary construction easements and staging and stockpiling areas.

(B) The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. <u>Revised Final Wetland Mitigation & Monitoring Program</u>

(A) **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit, for the review and approval of the Executive Director, a revised final detailed wetland mitigation and monitoring program that has been designed by a qualified biologist or restoration ecologist. The revised final wetland mitigation and monitoring program shall substantially conform to the document titled "Ferndale Wastewater Treatment Plant Wetland Mitigation and Monitoring Plan City of Ferndale, California" prepared by Manhard Consulting and dated November 2009 (Exhibit No. 9), except that the revised final plan shall include the following additions and/or changes:

(1) Performance standards that will assure achievement of the mitigation goals and objectives set forth Finding IV-D-3-b ("Net Loss of Wetland Habitat") and in the "Ferndale Wastewater Treatment Plan Wetland Mitigation and Monitoring Plan City of Ferndale, California" prepared by Manhard Consulting and dated November 2009, including, but not limited to, (a) restoration to pre-construction conditions all grazing lands temporarily impacted by project construction; (b) the creation of a Palustrine emergent wetland at least 1.43-acres in size to compensate for 0.65-acre of permanent seasonal wetland impacts and 0.03-acre of permanent herbaceous riparian wetland impacts; and (c) the objective that the mitigation wetlands shall exhibit "more functions and values" than the impacted wetlands, including those proposed on pages 14-15 of the referenced wetland mitigation and monitoring plan by Manhard Consulting.

(2) Provisions for monitoring at least the following attributes at the permanent wetland mitigation site during each monitoring year: (a) percent cover of hydrophytic vegetation; (b) percent cover of native vegetation; (c) plant species diversity; (d) seasonal variation in site hydrology; (e) hydrologic variation across different site elevations; (f) frequency, duration, and extent of inundation at the site; (g) matrix and chroma characteristics in the upper 18 inches of soil; (h) redox features in the upper 18 inches of soil; (i) presence of organic matter in the substrate; and (j) buffer area vegetation cover, vegetation diversity, and overall effectiveness. Performance standards to be developed shall clearly identify quantifiable attributes to be achieved, the condition or level that defines success, and the period over which the success must be sustained.

(3) Provisions for monitoring the temporarily impacted grazing lands, including the 14,700-square-foot construction staging area, 0.7-acre of construction easements, and the 1,800-square-foot water line installation area on APN 100-162-28, and provisions for monitoring at least the following attributes in these areas: vegetation coverage and density shall be monitored to assess whether the temporarily impacted areas achieve a level of coverage and density equivalent to pre-construction conditions within one year of completion of construction activities.

(4) Provisions for submittal within 30 days of completion of the initial wetland mitigation work (at the permanent wetland mitigation site) of (a) "as built" plans demonstrating that the initial mitigation work has been completed in accordance with the approved wetland mitigation and monitoring program, and (b) an assessment of the initial biological and ecological status of the "as built" wetland mitigation area. The assessment shall include an analysis of the attributes that will be monitored pursuant to the program, with a description of the methods for making that evaluation.

(5) Provisions for installing fencing and signage (e.g., "No Trespassing" and "Permanent Wetland Mitigation Area" signs) on the west side of the permanent wetland mitigation buffer area between the proposed effluent holding basin and the mitigation area.

(6) Provisions for removal of the proposed irrigation infrastructure for the wetland mitigation area upon completion of the monitoring period.

(7) Provisions to ensure that the wetland mitigation sites (both the temporarily impacted grazing lands and the permanent wetland mitigation area) will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site(s) does not meet the goals, objectives, and performance standards identified in the approved final wetland mitigation and monitoring program.

(8) Provisions for submittal of annual reports of monitoring results to the Executive Director by December 31 of each monitoring year for the duration of the required monitoring period, beginning the first year after submission of the "as-built" assessment. Each report shall include copies of all previous reports as appendices. Each report shall also include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the mitigation efforts in relation to the performance standards.

(9) Provisions for submittal of a final monitoring report to the Executive Director at the end of the five-year reporting period. The final report must be prepared in conjunction with a qualified biologist or restoration ecologist. The report must evaluate whether the mitigation sites conform to the goals, objectives, and performance standards set forth in the approved final wetland mitigation and monitoring program. The report must address all of the monitoring data collected over the monitoring period.

(B) If the final report indicates that the wetland mitigation program has been unsuccessful, in part or in whole, based on the approved goals and objectives set forth in the approved plan, the permittee shall submit a revised or supplemental wetland mitigation and monitoring program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in the approved plan. The revised wetland mitigation and monitoring

program shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

(C) The permittee shall monitor and remediate the restoration site in accordance with the approved wetland mitigation and monitoring program. Any proposed changes from the approved monitoring program shall be reported to the Executive Director. No changes to the approved monitoring program shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines no amendment is legally required.

5. Site Revegetation

All site revegetation, including revegetation both for erosion control and for wetland mitigation purposes, shall comply with the following standards and limitations:

(A) Only sterile nonnative annual grasses and/or native vegetation obtained from local genetic stocks within Humboldt County shall be used for erosion control and landscaping revegetation purposes. If documentation is provided to the Executive Director that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the property.

(B) All proposed plantings shall be maintained in good growing conditions throughout the life of the project, and whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the approved landscape plans.

(C) The use of rodenticides containing any anticoagulant compounds, including but not limited to Bromadiolone, Brodifacoum or Diphacinone, is prohibited.

6. Assumption of Risk

By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from flooding, erosion, and earth movement; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

7. Design Restrictions

(A) All exterior siding and roofing of the proposed structures shall be composed of materials and colors proposed in the application. The structures shall not be repainted or stained with products that will alter the color of the buildings without an amendment to this permit approved by the Commission. In addition, all exterior materials, including roofs and windows, shall be non-reflective to minimize glare; and

(B) All exterior lights, including any lights attached to the outside of the buildings, shall be the minimum necessary for the site security, and safe ingress and egress of the structures, and shall be low-wattage, non-reflective, shielded, and have a directional cast downward such that no light will shine beyond the boundaries of the treatment works site.

8. Future Development Restrictions

This permit is only for the development described in Coastal Development Permit Application No. 1-09-024. Any future improvements or modifications to the sewage treatment plant facilities or other approved development will require a permit amendment to Coastal Development Permit No. 1-09-024 from the Commission.

9. Regional Water Quality Control Board Approval

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit a copy of any amended Cease and Desist Order or Waste Discharge Requirements issued by the North Coast Regional Water Quality Control Board granting approval for the project or evidence that no such certification or discharge authorization is required. The permittee shall inform the Executive Director of any changes to the Commission-approved project required by the Regional Board. Such changes shall not be incorporated into the project until the permittees obtain a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

10. Department of Fish and Game Approval

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit a copy of a Streambed Alteration Agreement issued by the California Department of Fish and Game granting approval for the project, or evidence that no such authorization is required. The permittee shall inform the Executive Director of any changes to the Commission-approved project required by the Department. Such changes shall not be incorporated into the project until the permittees obtain a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS & DECLARATIONS

The Commission hereby finds and declares as follows:

A. Environmental Setting & Background Information

The Ferndale Wastewater Treatment Facility (WWTF) is located on the gently sloping alluvial plain of the lower Eel River Basin, in an unincorporated area of Humboldt County north of the Ferndale city limits, near the inland edge of the coastal zone (see Exhibit Nos. 1 and 2). The WWTF is located on two parcels along Port Kenyon Road between Market Street and California Street (Exhibit No. 3). The 9.5-acre parcel on the north side of the road (APN 100-161-008) contains an existing contact basin and treatment ponds, and the 0.75-acre parcel on the south side of the road (APN 100-162-020) contains an existing headworks facility. Both parcels have "Public Facilities" (PF) land use and zoning designations in the Humboldt County certified LCP. Lands surrounding the project area are used for dairy operations, associated residences, grazing, and natural resources uses, and most are designated and zoned "Agriculture Exclusive."

The project area is located near the confluence of the Salt River and Francis Creek (Exhibit No. 4). The Salt River is an old channel of the lower Eel River that was isolated when the Eel River meandered north to its current location. In the past, the Salt River was a deep and wide navigable waterway used by freight and passenger ships that anchored at Port Kenyon. The Salt River watershed has been significantly impacted due to historical land use changes and sedimentation contributed from the tributaries, which has resulted in an impaired channel with limited to non-existent surface flows. The Humboldt County Resource Conservation District is leading the Salt River Ecosystem Restoration Project (SRERP) to restore fish habitat, improve water quality, and alleviate flooding impacts to private property and public infrastructure in the area (a permit application for the SRERP is expected to be submitted for the Commission's consideration in the future). The current hydraulic dysfunction of the Salt River impacts flooding, effluent discharge from the WWTF, and overall water quality. Historically, the Salt River's water flows were sufficient to provide the required dilution for discharge from the City's WWTF. However, flows have been reduced significantly due to sedimentation and to the fact that Williams Creek, the main Salt River tributary upstream of the WWTF, changed course in 1998 because of storm-caused debris blockage and now drains into the lower Eel River southeast of Fernbridge, thereby no longer contributing surface water flow to the Salt River. This flow diversion has significantly reduced the surface water volume available to dilute the City's treated wastewater discharge to the Salt River via Francis Creek.

Francis Creek, which flows adjacent to both the headworks parcel and the northern boundary of the treatment pond parcel (see Exhibit No. 4), is a perennial stream with a small watershed, and the stream flow quickly subsides after moderate rain events. Three flooding events have occurred since 1995, including severe flooding in 1997, which deposited approximately 3 feet of silt in Francis Creek near Port Kenyon Road. Additional flooding of lower Francis Creek has occurred annually for the past several years. Specific restoration efforts of the work proposed under the future SRERP near the WWTF plan to move the Francis Creek channel alignment approximately 250 feet north of its existing location and to restore riparian vegetation adjacent to the channel. The portion of the creek adjacent to the northern boundary of the WWTF has accumulated significant silt in recent years and currently consists of a shallow channel and floodplain. Aquatic species such as watercress (*Rorippa nasturtium-aquaticum*), American

brooklime (*Veronica americana*), common horsetail (*Equisetum arvensis*), rushes (*Juncus* spp.), willows (*Salix* spp.), and red alder (*Alnus rubra*) vegetate the streambank. The riparian corridor is relatively narrow along this stretch of creek, extending approximately 35 feet from the edge of the southern creek bank and virtually absent along the northern creek bank.

The existing WWTF treats municipal wastewater from approximately 1,500 residences in the City of Ferndale, which is entirely outside of the coastal zone, as well as a small unincorporated area (known as Arlynda Corners) of approximately 20 residences outside the City limits within the coastal zone immediately surrounding the WWTF location. The WWTF discharges treated effluent seasonally into the Salt River via Francis Creek. The North Coast Regional Water Quality Control Board (RWQCB) permits the discharge of treated wastewater through the National Pollution Discharge Elimination System (NPDES). The RWQCB administers water quality protections found in the federal Clean Water Act (CWA), which is managed by the U.S. Environmental Protection Agency in addition to supplementary State regulations. The CWA established a framework for regulation of municipal and industrial discharges under the NPDES program. The CWA requires dischargers to obtain a permit that establishes effluent limits and specifies monitoring and reporting requirements.

Due to insufficient surface water flows in the Salt River and Francis Creek as discussed above, the City does not currently meet the Water Quality Control Plan for the North Coast Region ("Basin Plan") 100:1 receiving-water-to-effluent dilution requirement set in the City's NPDES permit. The failure to meet these standards is the basis for an (effluent) discharge Cease and Desist Order issued by the RWQCB on May 15, 2003 (CDO No. R1-2003-004; subsequently amended with CDO Nos. R1-2005-0087 on October 12, 2005, R1-2006-0109 on November 29, 2006, and R1-2008-0110 on December 11, 2008). The CDO includes a task list outlining a compliance timetable. The proposed project has been developed in collaboration with the RWQCB and is intended to comply with the CDO provisions.

Existing vegetation on the northern project parcel (where existing aeration pond, finishing pond, and disinfection facilities are located) consists of mostly ruderal upland habitat dominated by weedy grasses and herbs such as sweet vernal grass (*Anthoxanthum odoratum*), velvet grass (*Holcus lanatus*), hairy cat's-ear (*Hypochaeris radicata*), bird's-foot trefoil (*Lotus corniculatus*), English plantain (*Plantago lanceolata*), sheep sorrel (*Rumex acetosella*), and clovers (*Trifolium* spp.). The ruderal habitat surrounds the existing developed facilities on the parcel, and a slatted cyclone fence conceals the facilities from Port Kenyon Road, which is a County road.

According to the August 2009 biological study prepared for the project by Mad River Biologists, the headworks (southern) parcel has regularly been used as a spoils disposal deposit site for Francis Creek dredge material, ground road base, and green waste for over 30 years. However, wetland species have been identified on the parcel, including creeping buttercup (*Ranunculus repens*), blue flag iris (*Iris missouriensis*), creeping bent grass (*Agrostis stolonifera*), reed canary grass (*Phalaris arundinacea*), poison hemlock

(*Conium maculatum*), American brooklime, and others. Other weedy species found on the parcel include velvet grass, orchard grass (*Dactylis glomerata*), perennial rye grass (*Lolium perenne*), tall fescue (*Festuca arundinacea*), wild radish (*Raphanus* sp.), teasel (*Dipsacus* sp.), white clover (*Trifolium repens*), English plantain, sheep sorrel, pineapple weed (*Chamomilla suaveolens*), burclover (*Medicago polymorpha*), common sow thistle (*Sonchus oleraceus*), bull thistle (*Cirsium vulgare*), and bindweed (*Convolvulus arvensis*).

Currently, treated effluent from the WWTF is used to irrigate forage crops on adjacent pastureland to the south of the headworks parcel during the dry-weather season. This practice would continue under the proposed project.

B. Project Description

The City of Ferndale proposes to upgrade its Wastewater Treatment Facility (WWTF) to meet water quality and wastewater discharge standards. The proposed project would upgrade aging facilities, improve treatment and disinfection methods, and increase efficiency. All upgrades are designed to meet the standards and modified waste discharge requirements (WDRs) of the North Coast Regional Water Quality Control Board. The City is seeking funding through the USDA Rural Development Program to fund the proposed WWTF upgrades.

The proposed project consists of the following general components (and see detailed project plans attached as Exhibit Nos. 5, 6, and 7):

- Demolition and removal of existing structures and development on the project parcel south of Port Kenyon Road, including an existing concrete walk and headworks building covering an approximately 3,340-square-foot area, a 355-square-foot wooden storage building, a 26-square-foot well house, a 30-square-foot shed, and existing discharge piping (see sheets G-6 and G-7 of Exhibit No. 5);
- Placement of approximately 5,000 cubic yards of imported fill on the headworks parcel (across an approximately 0.7-acre area) to raise the existing grade by approximately 4 feet to ensure the new grade is above the 100-year flood elevation (see sheets C-9 and C-10 of Exhibit No. 5);
- Construction of new structures and development on the project parcel south of Port Kenyon Road including a new 6,730-square-foot aeration basin, a 4,275-square-foot filter building (plus 720 square feet of associated paved stoops and concrete pads), a 720-square-foot garage, a 580-square-foot vaults pad, a 196-square-foot fuel/generator pad, and new 7-foot-high chain-link and barbed-wire perimeter fencing around the parcel to replace the existing deteriorated fencing (see sheets G-8, S1-S7, A1-A8, and M3-M18 of Exhibit No. 5);
- Replacement of the existing influent pump station, which would pump raw wastewater to the headworks facility;

- Replacement of two existing effluent outfall pipes at Francis Creek with one new 10-inch diameter wastewater effluent pipe. Approximately 0.20 cubic yards of rock slope protection would be placed at the new outfall location above the ordinary high water mark of the creek (see Exhibit No. 6 and sheets C-7 and M-19 of Exhibit No. 5);

- Conversion of the existing aeration pond on the project parcel north of Port Kenyon Road in part to (1) a stormwater basin for overflow during peak storm events and in part to (2) a portion of a wetland mitigation area proposed to mitigate impacts associated with filling seasonal wetlands on the project parcel south of Port Kenyon Road for the proposed project (see Exhibit No. 9);

- Conversion of the existing chlorine contact basin on the project parcel north of Port Kenyon Road to a temporary holding tank for treated effluent. Pumps at the existing effluent pump station at this location would be replaced. Treated effluent would be pumped, as it currently is, either to (1) Francis Creek during the wet season, or (2) existing irrigation lines during the dry season to spray-irrigate forage crops on adjacent pastureland south of Port Kenyon Road (see sheet M-19 of Exhibit No. 5);

- Installation of an underground, approximately 900-foot-long 6-inch diameter HDPE (high density polyethylene) water main pipe extension from an existing 6-inch line located along California Street to the new office building on the headworks parcel. The size of the pipe is proposed to be 6 inches in diameter to prevent head losses and for fire hydrant capacity requirements. The extended line would be installed on a single parcel (APN 100-162-028, which currently is served by and/or is adjacent to the existing line along California Street) across open grazing lands parallel to an existing sewer line and is proposed to be buried a minimum of 30 inches below the ground surface. The line would be installed by digging an approximately 2-foot-wide by 3-foot-deep trench through the existing pastureland. The soil will be stockpiled on-site, and after pipe installation, the disturbed area would be restored to existing conditions by backfilling the trench, compacting and re-seeding (see Exhibit No. 7 and sheet C-6 of Exhibit No. 5);

- Installation of utility lines (gravity sewer, pressurized effluent reuse, and electrical) in trenches along the existing road surface of Port Kenyon Road. The required trenching varies in dimension from 2 feet to 3 feet in width and from 3 feet to 5 feet in depth, depending on the proposed utility. In addition, excavation to a depth of approximately 20 feet is proposed to connect the existing sewer to the proposed new wet well. Following utility installation, a mill and overlay is proposed for the road surface to restore the surface of the street to existing or better condition. The mill and overlay would not alter the finished elevation or drainage patterns along the road;

- Installation of temporary staging areas and construction easements adjacent to the headworks parcel for construction purposes:

    - Approximately 275 cubic yards of temporary fill in the form of gravel would be placed atop approximately 14,700 square feet (~0.3-acre) of

grazed seasonal wetlands for construction staging purposes on the parcel immediately adjacent to and west of the headworks parcel (APN 100-162-28). The area would be lined with geotechnical fabric prior to placing the temporary gravel fill. If necessary, the upper 6 inches of soil (approximately 275 cubic yards) would be removed prior to placement of the geotechnical fabric and stockpiled on site, to be replaced, compacted, and re-seeded as necessary at the conclusion of construction activities (following removal of the temporary fabric and gravel fill). The temporary staging area would be used for vehicle and equipment storage, temporary trailers, and temporary restrooms (see Exhibit No. 7 and sheet C-11 of Exhibit No. 5);

- Two temporary construction easements adjacent to the headworks parcel (on APN 100-162-28) to the south and west are proposed to be used by heavy equipment for loading the headworks site with a total of 15,000 cubic yards of import material. An 100-foot-wide easement is proposed along the west side of the headworks parcel and a 50-foot-wide easement is proposed on the south side of the headworks parcel. Site preparation would include removal and stockpiling (on-site) of the top 6 inches of topsoil. Approximately 20,300 square feet (~0.5-acre) of grazing land would be used as a temporary construction easement to the west of the headworks parcel, and 10,000 square feet (~0.2-acre) of grazing land would be used as a temporary construction easement to the south. The temporary construction areas would be restored to existing conditions by replacing and grading (as necessary) the stockpiled topsoil. The site would be reseeded and irrigated as necessary to re-establish existing grazing vegetation (see Exhibit No. 7).

Silt fences would be installed around all temporary staging areas and construction easements and maintained throughout the duration of construction activities.

Additional details on the proposed project include the following (see Exhibit Nos. 5 & 6):

- Influent Pump Station & Headworks Facility: The proposed project would remove and replace the existing influent pump station and headworks facility located on the project parcel south of Port Kenyon Road. The existing influent pipe would be relocated to a new influent structure that would contain three 0.5-mgd pumps, which would pump raw wastewater to the new headworks facility. Influent flow would normally flow through a mechanical bar screen and then into the Sequox (extended aeration treatment process) unit. A bypass channel would be installed with a manual bar screen if repairs need to be made to the mechanical bar screen (see sheet G-9 of Exhibit No. 5).

- Holding Pond: The existing wastewater treatment lagoon located on the northern project parcel would be converted in part to a temporary storage basin to store wet weather peak flows when flows exceed 0.95 mgd. This conversion would reduce the existing pond volume from approximately 15 mg to a capacity of 8 mg. Existing aerators, culvert, weir, and electrical cables, anchors, and risers would be

removed, and new HDPE liner would be installed along the bottom of the new basin. Additionally, three new 2.5-mgd pumps would pump excess flows over 0.95-mgd to the storage pond. An electric valve would open and close by means of a float in the wet well (see sheets 17-19 of Exhibit No. 5).

- Secondary Treatment: A new extended aeration treatment process would be constructed on the project parcel south of Port Kenyon Road. This activated sludge system would have sufficient air to strip the ammonia nitrogen to below 1.0 mg/l. The secondary treatment effluent is expected to meet a standard of 20 mg/l for biochemical oxygen demand and 20 mg/l for suspended solids (see sheets S1-S7 and M3-M18 of Exhibit No. 5).

- Sludge Handling: Sludge would be digested aerobically, with sufficient time for full digestion. Following aerobic digestion, the sludge would be dewatered by a sludge press and dumped into a truck for hauling off site.

- Tertiary Treatment: The project proposes tertiary treatment through two disc filters to be located in the disinfection/control (filter) building, each sized for an average daily flow of 0.55 mgd and a peak flow of 0.95 mgd (see sheets M16-M18 of Exhibit No. 5). The tertiary treatment effluent is expected to meet a standard of 10 mg/l for biochemical oxygen demand and 10 mg/l for suspended solids.

- Disinfection: Disinfection would be provided by ultraviolet (UV) light. The UV would operate in an open channel system located in the disinfection/control (filter) building. This would replace the existing chlorine disinfection system, which is located on the parcel north of Port Kenyon Road (see Sheets A1-A8 of Exhibit No. 5).

- Effluent Pumping: The effluent waters would flow via gravity from the new facility south of Port Kenyon Road to the existing concrete chlorine contact chamber to be used as the wet well for effluent pumping. Four vertical turbine pumps would be placed in the existing basin, with two pumps discharging to Francis Creek and two pumps discharging to irrigation (see sheets C3-C5 and M-19 of Exhibit No. 5).

- Dry Weather Discharge: Treated effluent would continue to be used to irrigate agricultural fields during the dry weather discharge period (May 15 to September 30). The effluent pump station would pump the treated effluent to forage crops across Port Kenyon Road.

- Wet Weather Discharge: Influent flows greater than 1.0 mgd would be pumped to the holding pond for temporary storage. The wastewater in the holding pond would flow by gravity back to the influent wet well and would be pumped through the treatment process. During the wet weather discharge period (October 1-May 14), treated effluent would be pumped through the effluent pump station and discharged into Francis Creek at the dilution specified in the WDRs. One new 10-inch diameter effluent outfall pipe would replace the two existing outfall pipes. Approximately 0.20 cubic yards of rock slope protection would be placed

at the new outfall location above the ordinary high water mark of the creek (see Exhibit No. 6 and sheets C-7 and M-19 of Exhibit No. 5);

- Disinfection/Control (Filter) Building: The new operating center would be contained in the disinfection/control (filter) building located on the site south of Port Kenyon Road. The north side of the building would house a small office, laboratory, and restroom facilities. An emergency generator capable of powering the plant would be located in the northwest corner of the project parcel (see Sheets A1-A8 of Exhibit No. 5).

The applicant completed a Mitigation Negative Declaration for the project pursuant to CEQA, in which various mitigation measures are proposed to be implemented. These are included as Exhibit No. 8.

C. Planning & Siting New Development and Publicly-Owned Wastewater Treatment Works

Section 30250(a) of the Coastal Act states, in applicable part, as follows:

> *New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources…* [Emphasis added.]

Section 30254 of the Coastal Act states, in applicable part, as follows:

> *New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division… Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.* [Emphasis added.]

Section 30254.5 of the Coastal Act states as follows:

> *Notwithstanding any other provision of law, the commission may not impose any term or condition on the development of any sewage treatment plant which is applicable to any future development that the commission finds can be accommodated by that plant consistent with this division. Nothing in this section modifies the provisions and requirements of Sections 30254 and 30412.*

Cited Section 30412 of the Coastal Act states, in applicable part, as follows:

> *(a) In addition to Section 13142.5 of the Water Code, this section shall apply to the commission and the State Water Resources Control Board and the California regional water quality control boards.*
>
> *(b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. The State Water Resources Control Board has*

primary responsibility for the administration of water rights pursuant to applicable law. The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not, except as provided in subdivision (c), modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights.

Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.

(c) Any development within the coastal zone or outside the coastal zone which provides service to any area within the coastal zone that constitutes a treatment work shall be reviewed by the commission and any permit it issues, if any, shall be determinative only with respect to the following aspects of the development:

(1) The siting and visual appearance of treatment works within the coastal zone.

(2) The geographic limits of service areas within the coastal zone which are to be served by particular treatment works and the timing of the use of capacity of treatment works for those service areas to allow for phasing of development and use of facilities consistent with this division.

(3) Development projections which determine the sizing of treatment works for providing service within the coastal zone.

The commission shall make these determinations in accordance with the policies of this division and shall make its final determination on a permit application for a treatment work prior to the final approval by the State Water Resources Control Board for the funding of such treatment works. Except as specifically provided in this subdivision, the decisions of the State Water Resources Control Board relative to the construction of treatment works shall be final and binding upon the commission.

(d) The commission shall provide or require reservations of sites for the construction of treatment works and points of discharge within the coastal zone adequate for the protection of coastal resources consistent with the provisions of this division… [Emphases added.]

The primary intent of Section 30250 of the Coastal Act is to direct new development toward areas where community services are provided and potential impacts to resources are minimized. Secondly, Section 30250 also requires that in locating such development, including the associated water supplies, wastewater treatment, and/or other forms of supporting infrastructure, that such development be located so as not to cause significant adverse effects, either individually or cumulatively, on coastal resources. Section 30254 of the Coastal Act sets limitations on the approval of new or expanded public works facilities such that their development is scaled to accommodate needs generated by levels of development found by the Commission to be consistent with the Coastal Act. Coastal Act Section 30254.5 places limitations on the Commission's ability to impose permit terms or conditions on the development of any sewage treatment plant which would prejudice or otherwise obviate the plant's ability to provide sewage treatment to any

Coastal Act-consistent future development that the Commission determines could be accommodated by the plant. Coastal Act Section 30412 further restrains the Commission's actions with regard to water quality issues, especially the development of publicly-owned wastewater treatment works, prohibiting the Commission from taking actions that would be in conflict with the State or Regional Water Quality Control Boards and limiting the Commission's determinations on the development of such treatment works within the coastal zone to issues regarding: (a) the siting and visual appearance of the treatment works; (b) geographic and temporal limits of service areas; (c) the timing of the use of capacity of treatment works for those service areas to allow for phasing of development; and (d) the sizing of treatment works as determined by development projections.

The existing Ferndale wastewater treatment facility (WWTF) serves approximately 1,500 residences of the City of Ferndale and approximately 20 residences in a small unincorporated area of Humboldt County known as Arlynda Corners in the immediate vicinity of the treatment facility (see Exhibit No. 2). Except for the approximately 20 residences served in the Arlynda Corners area, the majority of the service area is entirely outside of the coastal zone. Thus, approximately 99% of the service area is outside the coastal zone and 1% of the service area is within the coastal zone.

As discussed above in Finding IV-A, the proposed renovation of the treatment works is being undertaken primarily to resolve an existing effluent limit problem that is the result of insufficient creek flows inhibiting the 100:1 receiving-water-to-effluent dilution requirement set in the City's Federal Clean Water Act National Pollution Discharge Elimination System (NPDES) permit, as administered by the North Coast Regional Water Quality Control Board. The WWTF is being upgraded and improved in accordance with the cease and desist order issued by the RWQCB to achieve compliance with Basin Plan requirements.

Because the existing WWTF primarily serves development outside of the coastal zone (within the City of Ferndale), and the proposed upgrades to the facility will not increase the capacity of the plant or expand its service area, whether the new plant is sized appropriately to provide wastewater treatment capacity that does not exceed the LCP-certified density levels within its certified area is not at issue. However, it is important for the Commission to review and authorize any future changes to the facility design to ensure that any proposed changes would continue to match treatment plant capacity with the sewage treatment needs generated by certified LCP development densities consistent with Section 30254 of the Coastal Act. Therefore, the Commission attaches **Special Condition No. 8** to reflect the existing requirements under the Coastal Act that changes to the plant improvements and design would require authorization by the Commission.

Thus, the proposed development as conditioned is consistent with Coastal Act Section 30250(a) to the extent that the WWTF improvements have been designed and sized so as not to have significant adverse effects, either individually or cumulatively, on coastal resources from growth inducement that could result from an oversized treatment facility. In addition, given the limitation on the scope of actions taken by the Commission as

discussed in other findings sections of this report, the proposed development as conditionally approved is consistent with Sections 30254 and 30254.5. Therefore, Commission finds that the proposed project is consistent with Sections 30250, 30254, and 30254.5 of the Coastal Act.

D. Protection of Marine Resources, Water Quality, & Wetland Habitats

Section 30108.2 defines "fill" as the placement of earth or any other substance or material in a wetland or submerged area. The project involves both filling and dredging in seasonal wetlands for the following proposed development:

- Approximately 5,000 cubic yards of permanent fill (imported soil) will be placed atop approximately 30,000 square feet (~0.7-acre) of disturbed seasonal wetlands on the headworks parcel for improvements to the existing wastewater treatment facility;
- Approximately 0.20-cubic yards of permanent fill (rock riprap) will be placed atop approximately 0.03-acre of herbaceous riparian wetlands adjacent to the south bank of Francis Creek for the placement of the new outfall pipe, which would replace the two existing outfall pipes at the same location;
- Approximately 275 cubic yards of temporary fill (gravel) will be placed atop up to[1] approximately 14,700 square feet (~0.3-acre) of grazed seasonal wetlands for construction staging purposes. The area will be lined with geotechnical fabric prior to placing the temporary gravel fill. If necessary, the upper 6 inches of soil (approximately 275 cubic yards) will be removed prior to placement of the geotechnical fabric and stockpiled on site, stockpiled separately, and subsequently replaced and restored as necessary at the conclusion of construction activities (following removal of the temporary fabric and gravel fill);
- Up to[1] approximately 0.7-acre (~15,246 cubic yards) of grazed seasonal wetland habitat will be excavated to prepare the ground for temporary construction easement purposes. The top 6 inches of soil will be excavated and temporarily stockpiled on site during construction "loading" of the headworks parcel. Following construction activities, the topsoil will be replaced and the areas restored to pre-excavation conditions;
- Up to[1] approximately 1,800 square feet (5,400 cubic yards) of grazed seasonal wetland habitat will be excavated (to a depth of 3 feet) for the installation of the new water line extension. After the new pipe is installed, the excavated trench will be filled in with the stockpiled soil, and the area will be restored to pre-excavation conditions; and

Section 30230 of the Coastal Act states, in applicable part, as follows:

[1] Because no formal wetland delineation has been completed for this area, it in unknown precisely how much of the area to be impacted constitutes wetland habitat. For the purposes of the Commission's analysis, the entire stated area is presumed to be grazed seasonal wetland habitat.

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.* [Emphasis added.]

Section 30231 of the Coastal Act addresses the protection of water quality and marine resources in conjunction with development and other land use activities. Section 30231 states as follows:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with the surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.* [Emphasis added.]

Section 30233(a) of the Coastal Act provides, in applicable part, the following:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> …
>
> *(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.* [Emphasis added.]

The above policies set forth a number of different limitations on what development projects may be allowed in coastal waters and wetlands. For analysis purposes, the limitations can be grouped into four general categories or tests, as follows:

- The purpose of the filling, diking, or dredging is for one of the seven uses enumerated in Section 30233(a);
- The project has no feasible less environmentally damaging alternative;
- Feasible mitigation measures have been provided to minimize adverse environmental effects; and
- The biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

Each category is discussed separately below.

1. Permissible Use for Fill

The first test set forth above is that any proposed filling, diking, or dredging in wetlands must be for an allowable purpose as specified under Section 30233 of the Coastal Act. The relevant category of use listed under Section 30233(a) that relates to the proposed project is subcategory (4), stated as follows:

> *(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*

To determine if the proposed filling is for an incidental public service purpose, the Commission must determine (a) that the proposed filling is for a public service purpose, and (b) that the proposed fill is incidental to that purpose.

The Commission finds that the proposed fill for the upgrading of the existing wastewater treatment facility to meet water quality standards in a manner that does not increase the capacity of the treatment plant is for an "incidental public service" purpose pursuant to the requirements of Coastal Act Section 30233(a)(4). In reaching this conclusion, the Commission finds that as the treatment plant improvements are being performed by a public agency to serve the public, the proposed fill is for a public service. In addition, the Commission finds that the fill for the sewage treatment plant improvement project is incidental to "something else as primary," in that the project is designed to improve the water quality of the discharge from the existing treatment plant, which is incidental to the primary service provided overall by the existing treatment plant facility. This finding can be made for this coastal development permit application supported in part on the basis that the subject treatment plant improvements will not increase sewage treatment plant capacity, but rather will improve the water quality of the discharge from the plant. Thus, the fill for the treatment plant improvements and upgrades is "incidental" to the overall existing sewage treatment plant facility.

Therefore, the Commission finds that the filling of wetlands for the proposed development is for an incidental public service purpose and thus is an allowable use pursuant to Section 30233(a)(4) of the Coastal Act.

2. Least Environmentally Damaging Feasible Alternative

The second test of Section 30233(a) is whether there are feasible less environmentally damaging alternatives to the proposed project. In this case, the Commission has considered project options and determines that there are no feasible less environmentally damaging alternatives to the project as conditioned. Alternatives that have been identified include (a) using a different site and/or method(s) to achieve the necessary WWTF improvements; and (b) the "no project" alternative.

(a) Using a Different Site and/or Method to Achieve Necessary Facility Improvements

The City explored a variety of alternatives to the proposed project, some of which entailed confining all necessary improvements to the northern parcel within already developed areas. Some alternatives considered by the City include (1) discharging to the

Eel River; (2) creation of treatment marshes; (3) creation of a storage pond; (4) replacing the existing influent pump station and replacing the existing aerating pond and finishing pond with activated sludge treatment utilizing the Biolac™ system; and (5) activated sludge (Biolac™) plus filtration and UV disinfection.

Although the first three alternatives (discharge to the Eel River, creation of treatment marshes, and storage pond alternatives) would involve no wetland fill on the headworks parcel, they would have significant adverse impacts to biological resources. For example, discharging to the Eel River would involve installing approximately 2.5-miles of piping to convey the effluent from the WWTF to a discharge point on the Eel River, and a significant amount of riparian vegetation along the route would be impacted. The creation of treatment marshes would involve the conversion of approximately nine acres of prime agricultural land (grazing land) and up to three acres of wetlands to the new treatment marsh facility. The storage pond alternative would require a volume of approximately 143 million gallons of treated wastewater storage, necessitating an area of approximately 40 acres (for an 11-foot-deep pond). This alternative would have significant adverse impacts on agricultural lands as well wetland habitats.

Alternatives 4 and 5 (activated sludge [Biolac™] and Biolac™ with filtration and UV disinfection) both would involve wetland fill on the headworks parcel in addition to regular maintenance dredging of Francis Creek to maintain the channelized reach of the receiving water body.

As for locating an alternative site for the proposed wastewater treatment upgrades other than the existing City property on which the current facility is located, according to the City, other private property owners are not interested in selling or leasing their properties, and at this time, there are no other feasible sites available for acquisition or implementing the necessary treatment upgrades.

Therefore, using a different site and/or method to achieve the necessary facility improvements is not a feasible less environmentally damaging alternative to the proposed project, as conditioned.

(b) No Project Alternative

The “no project” alternative means that no improvements would occur to the existing WWTF, and the facility would continue to violate NPDES discharge requirements. Violation of these requirements would result in continued and cumulative water quality impacts to Francis Creek as well as adverse impacts to aquatic species and other biological resources, including sensitive fish species. Therefore, the no project alternative is not a less environmentally damaging feasible alternative to the proposed project, as conditioned.

(c) Conclusion

Based on the above alternatives analysis, the Commission concludes that the proposed project is the least environmentally damaging feasible alternative.

3. Feasible Mitigation Measures

The third test set forth by Sections 30230 and 30233 of the Coastal Act is whether feasible mitigation measures have been provided to minimize adverse environmental impacts. Depending on the manner in which the proposed project is conducted, the significant adverse impacts of the project may include (a) impacts to aquatic habitat from water pollution in the form of sediment, pollutants, or debris entering coastal waters and wetlands; (b) a net loss of wetland habitat from temporary and permanent wetland impacts associated with the proposed construction; (c) impacts to adjacent wetland habitats from construction activities; (d) introduction through re-planting of exotic invasive plants species that could displace native vegetation in surrounding natural habitats; and (e) use of certain rodenticides that could deleteriously bio-accumulate in predator bird species. The potential impacts and their mitigations are discussed in the following sections:

(a) Water Pollution Impacts to Aquatic Habitat & Water Quality

The proposed WWTF improvements are being undertaken adjacent to grazed seasonal wetlands and riverine wetlands (Francis Creek and its associated riparian habitat). The seasonal wetlands provide habitat to a wide assortment of terrestrial organisms, most notably foraging habitat for several special-status avian species, including sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*A. cooperii*), snowy egret (*Egretta thula*), and osprey (*Pandion haliaetus*). Francis Creek supports habitat for special-status fish species including coastal cutthroat trout (*Oncorhynchus clarki clarki*) and steelhead trout (*O. mykiss*).

Potential adverse impacts to the water quality of Francis Creek and surrounding wetland habitats could occur in the form of runoff originating from the development site that is allowed to drain toward these areas, which could contain entrained sediment and other pollutants that would contribute to degradation of the quality of coastal wetlands and waters. Sedimentation impacts from runoff would be of most concern during construction activities. Although the project description states that such impacts would be prevented and minimized by utilizing best management practices for erosion and sediment control and preparing and implementing a stormwater pollution prevention plan (SWPPP) during construction, at this point no measures have been identified for managing exposed soils, controlling the deposition of pollutants, or for cleaning up and preventing pollutant spills leaving the construction site in runoff. Therefore, the Commission attaches **Special Condition No. 1**, which requires submittal of a final erosion and run-off control plan prior to permit issuance. The plan must demonstrate that (a) run-off from the project site must not increase sedimentation in coastal waters, (b) run-off from the project site must not result in pollutants entering coastal waters, (c) best management practices (BMPs) must be used to prevent the entry into coastal waters of polluted stormwater runoff during construction activities as well as from the completed development, and (d) the plan is consistent with the requirements of all other special conditions. The plan also is required to include an on-site spill prevention and control response program to address any

accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from construction equipment and to prevent any such releases from entering coastal waters.

In addition, the Commission attaches **Special Condition No. 2** to specify various construction responsibilities that must be implemented to protect adjacent aquatic habitat and water quality. Special Condition No. 2 requires the applicant to undertake the development pursuant to certain construction responsibilities, including, but not limited to, the following:

(a) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or wetlands, except within staging areas and construction easements approved pursuant to the requirements of Special Condition No. 3, discussed below;

(b) Any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier, in accordance with Special Condition No. 3,

(c) All grading activities shall be conducted during the dry season period of June 15 through November 30; any grading activity conducted between October 16 and November 30 shall be subject to the following conditions: (1) All work shall cease upon the onset of precipitation at the project site and shall not recommence until the predicted chance of rain is less than 50 percent for the Ferndale area portion of the Redwood Coast segment of the National Weather Service's forecast for Northwestern California; and (2) The work site(s) shall be winterized between work cessation periods by installing stormwater runoff and erosion control barriers around the perimeter of each construction site to prevent the entrainment of sediment into coastal waters; (3) Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use;

(d) No construction shall occur within coastal waters or flowing stream channels;

(e) If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(f) Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 5 (see below) and/or mulched with weed-free rice straw;

(g) Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas only;

(h) Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-

up/remediation service shall be locally available on call. Any accidental spills shall be rapidly contained and cleaned up;

(i) Silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional siltation barrier materials shall be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur;

(j) Prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes; and

(k) No riparian vegetation shall be removed along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

Finally, the Commission attaches **Special Condition No. 3** requiring the applicant to submit final debris disposal and construction access, staging, and stockpiling plans prior to permit issuance for the Executive Director's review and approval. The final plans must demonstrate that (a) no excavated materials to be removed will be temporarily placed or stored during grading activities where it may be subject to entering wetlands or other coastal waters, except within designated staging areas; (b) erosion control techniques will be implemented around the temporarily stored spoils material; (c) excavated materials removal activities will not occur during the rainy season consistent with Special Condition No. 2; (d) all staging areas and construction easements to be located in grazing lands will be limited to the locations and sizes specified in the project description (see Finding IV-B); and (e) upon completion of project activities in the area and prior to November 15 of each year, all temporarily disturbed seasonal wetlands (including but not limited to temporary staging areas, stockpiling areas, and access roads) will be decompacted and reseeded, as needed, with a mix of regionally appropriate native grasses and/or noninvasive agricultural species.

In conclusion, the special conditions discussed above minimize adverse impacts to water quality and do not conflict with any determination by the State Water Resources Control Board or any California Regional Water Quality Control Board determination in matters relating to water quality as required by Section 30412 of the Coastal Act. As conditioned to require (a) submittal and implementation of final plans for erosion and run-off control, debris disposal, and construction access, staging, and stockpiling and (b) adherence to various construction responsibilities, the Commission finds that the project provides feasible mitigation measures to minimize the project's potential water quality impacts, as required by Sections 30230 and 30233 of the Coastal Act.

(b) Net Loss of Wetland Habitat

As discussed above and as summarized below, the project involves both filling (temporarily and permanently) and dredging in coastal wetlands:

- Approximately 5,000 cubic yards of permanent fill (imported soil) will be placed atop approximately 30,000 square feet (~0.7-acre) of disturbed seasonal wetlands on the headworks parcel for improvements to the existing wastewater treatment facility;
- Approximately 0.20-cubic yards of permanent fill (rock riprap) will be placed atop approximately 0.03-acre of herbaceous riparian wetlands adjacent to the south bank of Francis Creek for the placement of the new outfall pipe, which will replace the two existing outfall pipes at the same location.
- Approximately 275 cubic yards of temporary fill (gravel) will be placed atop up to[2] approximately 14,700 square feet (~0.3-acre) of grazed seasonal wetlands for construction staging purposes. The area will be lined with geotechnical fabric prior to placing the temporary gravel fill. If necessary, the upper 6 inches of soil (approximately 275 cubic yards) will be removed prior to placement of the geotechnical fabric and stockpiled on site, stockpiled separately, and subsequently replaced and restored as necessary at the conclusion of construction activities (following removal of the temporary fabric and gravel fill);
- Up to[2] approximately 0.7-acre (~15,246 cubic yards) of grazed seasonal wetland habitat will be excavated to prepare the ground for temporary construction easement purposes. The top 6 inches of soil will be excavated and temporarily stockpiled on site during construction "loading" of the headworks parcel. Following construction activities, the topsoil will be replaced and the areas restored to pre-excavation conditions;
- Up to[2] approximately 1,800 square feet (5,400 cubic yards) of grazed seasonal wetland habitat will be excavated (to a depth of 3 feet) for the installation of the new water line extension. After the new pipe is installed, the excavated trench will be filled in with the stockpiled soil, and the area will be restored to pre-excavation conditions; and

For areas of temporary wetland impact (i.e., 14,700-square-foot construction staging area, 0.7-acre of construction easements, and 1,800-square-foot water line installation area) the applicant is proposing to restore all areas to pre-construction conditions following completion of construction. Specifically, the applicant proposes to remove the upper 6 inches of topsoil in these areas prior to construction activities, separately stockpile the topsoil and keep it moist for the duration of construction activities, and then reapply the topsoil as the top layer of the temporarily disturbed areas upon construction completion. If necessary, soils will be appropriately compacted and re-seeded to ensure revegetation to pre-construction conditions. In this way, the applicant proposes that all wetland areas temporarily impacted by construction activities will be restored, and there will be no net loss of wetland habitat in these "temporarily impacted" areas.

[2] Because no formal wetland delineation has been completed for this area, it in unknown precisely how much of the area to be impacted constitutes wetland habitat. For the purposes of the Commission's analysis, the entire stated area is presumed to be grazed seasonal wetland habitat.

For areas of permanent wetland impact (i.e., the approximately 30,00 square feet of seasonal wetlands on the headworks parcel and the 0.03-acre of herbaceous riparian wetlands at the Francis Creek outfall pipe) the applicant has prepared a Wetland Mitigation and Monitoring Plan (Exhibit No. 9), which proposes to establish a permanent mitigation wetland on the WWTF site, on the project parcel north of Port Kenyon Road. The mitigation area is proposed to be 1.55 acres in size, which equates to a mitigation ratio of slightly more than 2-to-1 for impacts to 0.655-acre of seasonal wetlands on the headworks parcel due to facility upgrades, and at least 4-to-1 for impacts to 0.03-acre of herbaceous riparian wetlands due to the outfall pipe replacement at Francis Creek.

The applicant asserts that the proposed mitigation ratios are appropriate because the proposed permanent wetland mitigation area will be located on the project site immediately adjacent to Francis Creek riparian habitat, thereby enhancing this established, functioning habitat that supports a wide variety of terrestrial organisms and contributes to the aquatic habitat values of Francis Creek. The applicant further asserts that the mitigation ratios are appropriate since the seasonal wetlands to be impacted on the headworks parcel are highly disturbed, lack connectivity to a natural water source, are limited in vegetation diversity, are dominated by nonnative species, and serve few if any ecosystem functions and values. In contrast, the applicant is proposing a 4-to-1 mitigation ratio for impacts to the Francis Creek herbaceous riparian wetlands, which are immediately adjacent to Francis Creek, support a diversity of native species, and serve various ecosystem functions such as water storage, nutrient cycling, sequestration of elements, wildlife habitat, and other functions.

The Commission finds that because (1) the majority of the wetlands being impacted (i.e., the seasonal wetlands on the headworks parcel) are at the drier end of the wetland moisture gradient, and (2) in this region of abundant fog and rain and moist, water-retaining soils, mitigation wetlands have a relatively high probability of successfully achieving the wetland functions and values for which they are intended to compensate, the mitigation ratios as proposed are appropriate in this particular case.

The applicant's Wetland Mitigation and Monitoring Plan (Exhibit No. 9) proposes to create a permanent 1.55-acre mitigation wetland on the WWTF parcel at the site of the existing finishing pond and within part of the existing aeration pond (which is proposed to be converted to an overflow stormwater basin, as described above in Finding IV-B). The proposed mitigation wetland is proposed to be a Palustrine emergent wetland[3] with the following functions and values (from pages 14-15 of Exhibit No. 9): (1) habitat characteristics such as species diversity, plant cover, species composition; (2) hydrologic regime to support hydrophytic vegetation; (3) topographic complexity that allows interflow between the wetland and adjacent uplands and riparian areas; (4) biogeochemical processes that would normally occur within a wetland; (5) vegetation cover to sufficiently stabilize soils; (6) a variety of habitats and food sources available throughout the year to support the wildlife that normally inhabits these areas; (7) presence and characteristic of plant biomass and the presence of detritus and soil

[3] As classified by the U.S. Fish and Wildlife Service (Cowardin et al. 1992).

components that are needed for nutrients to be cycled within a wetland; (8) physical structure of hydrology that minimizes gully flow and increases sheet flow so that water is retained in such duration as to allow percolation into the soils and the water table to minimize downstream flooding as well as to contribute to the water needs of adjacent upland communities; and (9) to have a complement of plant species established that fosters the development of microbial communities to assist with nutrient cycling. The mitigation wetland will be constructed by partially filling the existing wastewater treatment lagoon areas with imported soils, including those that are proposed to be used to "load" the headworks site (which involves placing the soils on the site temporarily to achieve desired compaction standards) and soil spoils from the Salt River Ecosystem Restoration Project (see Finding IV-A) and/or imported topsoil. The grades within the wetland mitigation area will vary from 15.5 feet to 17.3 feet in elevation (having both high and depression areas), which is approximately 1 to 2 feet lower than the elevation of the existing headworks site. The hydrology within the proposed mitigation wetland will be primarily from precipitation, surface water runoff from the catchment area surrounding the mitigation wetland, and groundwater. The wetland is proposed to have an "emergency" outflow earthen structure to allow water to enter and leave the wetland during large storm events when the water within Francis Creek overtops its banks. The elevation of the earthen outflow structure will be set so that only a maximum of two inches of water will be standing within the wetland after a large storm event, and the standing water is expected to drawdown through infiltration, evapotranspiration, and transpiration. Finally the vegetation within the proposed mitigation area is proposed to consist of native, herbaceous hydrophytes including ferns, grasses, sedges, rushes, and herbs (see Exhibit No. 9). Plugs will be installed, as well as broadcast seeding. Plantings of woody species such as vine maple, bigleaf maple, red alder, hawthorn, Oregon ash, and willows are proposed to be installed in a 20-foot buffer area along the length of the new mitigation wetland on the north side and the existing riparian habitat along Francis Creek (see Exhibit No. 9). In addition to the 20-foot buffer on the north side that will tie in with existing mature riparian habitat, the mitigation wetland will support a 20-foot buffer on the west side (between the wetland and the existing chlorine contact basin), south side (between the wetland and the existing fencing adjacent to Port Kenyon Road), and east side (between the wetland and the overflow stormwater basin), all of which are proposed to be planted with a mix of native herbs, ferns, sedges, rushes, and grasses. The eastern boundary of the 20-foot buffer area on the east side will be fenced with the existing chain-link fencing that is proposed to be removed from the north side of the mitigation area (thereby tying together the existing riparian habitat along Francis Creek with the woody buffer vegetation proposed to be installed in this area). There will be an additional buffer of approximately 100 feet between the proposed eastern fencing and the overflow stormwater basin, which will be a maintained area that is proposed to be planted with native grasses.

The mitigation plan proposes to install a temporary irrigation system around the wetland mitigation site to facilitate the establishment of vegetation in the area during the first two years. The plan does not anticipate needing to use the system past year two of the maintenance and monitoring period. The plan proposes to monitor and maintain the wetland mitigation area for a period of five years from its completed construction, which

due to the need for the aeration pond's maintenance until the completion of the WWTF upgrades, is not expected to occur until August of 2011 (thus monitoring would commence once a full growing season has elapsed after installation of the last planted material). The proposed performance standards and success criteria to be monitored include vegetation percent cover, composition, and diversity (with target values indicated for natives in each category, each monitoring year), hydrology, soils, and total acreage exhibiting the required wetland features (i.e., hydrophytic vegetation, wetland hydrology, and hydric soils).

Proposed standards for assessing the final success of the mitigation wetland include the following (see pages 18-19 of Exhibit No. 9): (1) at least 70% (aerial cover for all strata) of the mitigation area will be vegetated with native hydrophytes, and no more than 10% of the site will be open water and/or bare ground; (2) plant species diversity in the mitigation area will be equivalent to or greater than the impacted wetlands (as calculated by a diversity index to be clearly defined and justified within the monitoring report), otherwise the mitigation area will be deemed unsuccessful; (3) realization of targeted acreage of the proposed communities and habitats (if there are differences greater than 15-20%, then corrective measures are proposed to be taken); (4) soils will support the targeted vegetation and will develop a chroma of two or less; (5) indicators of wetland hydrology will be evident "in more years than not," or else corrective actions will be taken; and (6) invasive and undesirable plants will not be present within the mitigation site, and if any are found, they will be removed, and a management plan will be created to prevent their re-introduction.

Annual reports are proposed to be submitted each year to Commission staff by January 1. At the end of the five-year monitoring period a final report will be submitted, which will make a determination as to whether the requirements of the mitigation plan have been achieved.

The Commission finds that the methods and procedures proposed in the wetland mitigation plan in general are appropriate, but in some cases they do not go far enough or fail to completely address certain factors to ensure that there is no net loss of wetland habitat as a result of the proposed project. For example, the wetland mitigation plan does not address monitoring of or remediation for the temporarily impacted wetland sites (i.e., the 14,700-square-foot construction staging area, 0.7-acre of construction easements, and the 1,800-square-foot water line installation area). If restoration efforts were to be unsuccessful in these areas, a potential net loss of wetland habitat would result. Furthermore, the proposed plan includes no provisions for removal of irrigation infrastructure proposed for the mitigation area, which, if it were to remain in place for use indefinitely, could inhibit the goal of attaining a hydraulically functional, self-sustaining mitigation wetland. Moreover, the mitigation goals, objectives, and performance standards are in some cases incomplete or conflicting, which could cause problems during site monitoring and difficulty understanding monitoring results and mitigation success.

Therefore, the Commission attaches **Special Condition No. 4**. This condition requires that prior to permit issuance the applicant submit for the Executive Director's review and approval a revised final wetland mitigation and monitoring program. The revised program should substantially conform to the submitted wetland mitigation and monitoring plan (Exhibit No. 9), except that various specified changes and/or additions must be included to (1) clarify performance standards, (2) specify provisions for monitoring various attributes at both the permanent mitigation site and temporarily impacted grazing lands, (3) require submittal of "as-built" plans within 30 days of completion of the initial mitigation work to ensure that the work has been completed in accordance with the approved final mitigation and monitoring program; (4) require the installation of fencing and signage on the west side of the mitigation area; (5) require removal of the proposed irrigation infrastructure upon completion of the monitoring period; and (6) ensure that the wetland mitigation site will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site(s) does not meet the goals, objectives, and performance standards identified in the approved final wetland mitigation and monitoring program. If the final report indicates that the wetland mitigation program has been unsuccessful, in part or in whole, based on the approved goals and objectives set forth in the approved plan, the permittee must submit a revised or supplemental wetland mitigation and monitoring program to compensate for those portions of the original program which did not meet the approved goals and objectives set forth in the approved plan. The revised wetland mitigation and monitoring program shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

As conditioned, the Commission finds that the project provides feasible mitigation measures to minimize the project's potential to result in a net loss of wetland habitat, as required by Sections 30230 and 30233 of the Coastal Act.

(c) Impacts to Adjacent Wetland Habitats from Construction Activities

Because the proposed work area abuts Francis Creek (to the east of the proposed staging area and to the north of the northern WWTF parcel) and grazing seasonal wetlands (to the west and south of the headworks parcel and adjacent construction easements), potential significant adverse impacts could occur to these adjacent wetland habitats if appropriate mitigation measures are not implemented. As discussed in the above sections, the Commission has attached various conditions to protect adjacent wetlands habitats. For example, **Special Condition No. 1** requires submittal of a final erosion and run-off control plan prior to permit issuance for the Executive Director's review and approval. The plan must demonstrate that run-off from the project site will not result in sediment or pollutants entering coastal waters or adjacent wetlands, and best management practices (BMPs) must be used to prevent the entry of polluted stormwater runoff into coastal waters and adjacent wetland habitats during the construction activities. Special **Condition No. 2-I** requires that silt screens, straw bales, and other appropriate devices shall be installed around the perimeter of the construction areas prior to the initiation of grading activities and shall be maintained throughout project construction. Additional

siltation barrier materials are to be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur. Additionally, **Special Condition No. 2-J** requires that prior to the commencement of construction, the work area be delineated, limiting the potential area affected by construction, and workers be educated about the limitations on construction. All vehicles and equipment are to be restricted to pre-established work areas and established or designated access routes. Furthermore, **Special Condition No. 2-K** prohibits the removal of any riparian vegetation along Francis Creek, except for 0.03-acre of herbaceous riparian vegetation associated with the replacement of the outfall pipe.

As conditioned to require the above measures and various other water quality and habitat protection measures summarized in Special Condition Nos. 1, 2, 3, and 5, the Commission finds that the project provides feasible mitigation measures to minimize the project's potential impacts to adjacent wetland habitats, as required by Sections 30230 and 30233 of the Coastal Act.

(d) Introduction of Invasive Exotic Species

The use of non-invasive plant species adjacent to environmentally sensitive habitat areas (ESHAs), such as riparian habitats and grazed seasonal wetlands, is critical to protecting such areas from disturbance. If invasive species are planted adjacent to an ESHA they can displace native species and alter the composition, function, and biological productivity of the ESHA.

As discussed above, the City is proposing to revegetate areas that are disturbed during construction activities with a seed-mix appropriate for local pasture habitats. The City is further proposing to create a permanent wetland mitigation area on the parcel north of Port Kenyon Road, which will involve the installation of various wetland plant plugs and seed mixes.

To ensure that no invasive plant species are seeded in the project area, **Special Condition No. 5** requires that revegetation shall be performed only with native plants obtained from local genetic stocks or sterile non-native grasses. The special condition also prohibits the planting of any plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. Furthermore, no plant species listed as a "noxious weed" by the governments of the State of California or the United States are to be utilized in the revegetation portion of the project.

(e) Use of Anti-Coagulant-Based Rodenticides

To help in the establishment of vegetation, rodenticides are sometimes used to prevent rats, moles, voles, and other similar small animals from eating the newly planted saplings. Certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to pose significant primary and secondary risks to non-target wildlife present in urban and urban/wildland

areas. As the target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, these compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species.

To avoid this potential cumulative impact to environmentally sensitive wildlife species, **Special Condition No. 5-C** contains a prohibition on the use of such anticoagulant-based rodenticides.

(f) Conclusion

As conditioned, the Commission finds that feasible mitigation is required to minimize all significant adverse impacts associated with the proposed dredging and filling of coastal wetlands, as is required by Sections 30230 and 30231 of the Coastal Act.

4. Maintenance & Enhancement of Marine Habitat Values

The fourth general limitation set by Sections 30233 and 30231 of the Coastal Act is that any proposed filling in tidal waters or submerged lands must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed above, the conditions of the permit will ensure that the project will not have significant adverse impacts on coastal waters or wetlands in and around the project vicinity. The mitigation measures incorporated into the project and required by the special conditions discussed above will ensure that the proposed improvements to the WWTF will not adversely affect the biological productivity and functional capacity of coastal waters or marine resources. Furthermore, by (1) providing for a new palustrine emergent wetland within part of the former aeration pond adjacent to Francis Creek as proposed by the applicant with functions and values greater than the degraded seasonal wetland area to be filled by the development, and (2) expanding the riparian vegetation canopy at the permanent wetland mitigation site, as discussed above, the riparian habitat surrounding Francis Creek will be enhanced, which in turn, will enhance the aquatic habitat of Francis Creek for marine resources such as steelhead trout.

Therefore, the Commission finds that the project, as conditioned, will maintain and enhance the biological productivity and functional capacity of the habitat consistent with the requirements of Sections 30231 and 30233 of the Coastal Act.

5. Conclusion

In summary, the Commission finds that the project is for an allowable use, that there is no feasible less environmentally damaging alternative, that feasible mitigation is required to minimize all significant adverse impacts associated with the filling of coastal wetlands, and that wetland habitat values will be maintained or enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Sections 30231, 30233, and 30412 of the Coastal Act.

E. Flood Hazards

The Coastal Act contains policies to assure that new development provides structural integrity, minimizes risks to life and property in areas of high geologic and flood hazard, and does not create or contribute to erosion. Section 30253 of the Coastal Act states in applicable part as follows:

> *New development shall do all of the following:*
>
> *(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.* [emphasis added]

The subject property is located in the lower Eel River Valley and is within the a mapped 100-year flood zone. As discussed above, the project sites lies near the confluence of the Salt River and Francis Creek. The Salt River is an old channel of the lower Eel River that was isolated when the Eel River meandered north to its current location, In the past, the Salt River was a deep and wide navigable waterway used by freight and passenger ships that anchored at Port Kenyon. The Salt River watershed has been significantly impacted due to historical land use changes and sedimentation contributed from the tributaries, which has resulted in an impaired channel with limited to non-existent surface flows. The current hydraulic dysfunction of the Salt River impacts flooding, effluent discharge from the WWTF, and overall water quality. Furthermore, Francis Creek, which flows adjacent to both the headworks parcel and the northern boundary of the treatment pond parcel, also floods periodically. Three flooding events have occurred since 1995, including severe flooding in 1997, which deposited approximately 3 feet of silt in Francis Creek near Port Kenyon Road. Additional flooding of lower Francis Creek has occurred annually for the past several years.

Because of the flooding hazards, the area where the subject property is located has been identified as "an area of special flood hazard" by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA). The FIA produces Flood Insurance Rate Maps (FIRM) for the United States which include, among other information, delineations of special flood hazard areas where there is a one percent (1%) or greater chance of flooding in any given year. Flood Insurance Rate Maps are included within Flood Insurance Studies produced by the FIA. The Flood Insurance Study for the County of Humboldt was published in 1982 and has been amended several times since then.

The fact that the subject property is located within an area of special flood hazard means there is the risk that the development itself will be inundated with flood waters during times of flood, which not only directly damages property on the site itself, but also threatens downstream people and properties by sweeping up materials that could contain hazardous substances or become projectiles that could increase the danger to downstream properties.

To minimize this risk, the applicant is proposing to construct all new buildings above the base flood elevation and to comply with standards of development within the flood zone (see Mitigation Measure M-7, Exhibit No. 8). This will be accomplished by placing approximately 5,000 cubic yards of imported fill across the approximately 0.7-acre headworks parcel to raise the finished grade an elevation of 4 feet above the base flood elevation. Thus, the Commission finds that development of the proposed buildings on the headworks parcel in the proposed manner would minimize risks to life and property from flood inundation hazards.

Although the permit has been conditioned to minimize risks to life and property from flood hazards, some risk remains. Therefore, the Commission attaches **Special Condition No. 6**. The special condition requires the applicant to assume the risks of flooding hazards to the property and waive any claim of liability on the part of the Commission. Given that the applicant has chosen to implement the project despite flooding risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards.

For all of the above reasons, the Commission finds that as conditioned, the project will minimize risks to life and property from flood hazards and is consistent with Section 30253 of the Coastal Act.

F. Visual Resources

Coastal Act Section 30251 requires permitted development to be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas.

Consistent with this policy, the project as designed and sited will not significantly obstruct any views to or along the ocean or scenic coastal areas. The existing facilities on the project parcel on the north side of Port Kenyon Road currently are obscured from view from the public roadway by a slatted cyclone fence, which is proposed to remain in place under the proposed project. The project parcel south of Port Kenyon Road currently is relatively open, and views of surrounding open pastureland and distant hills in the background are available from Port Kenyon Road. These views will be somewhat diminished when the site is developed with the proposed new 6,730-square-foot aeration basin, 4,275-square-foot filter building, 720-square-foot garage, 580-square-foot vaults pad, 196-square-foot fuel/generator pad, and new site perimeter fencing to replace the existing deteriorated fencing. However, any viewshed impacts will be insignificant due to the low height of the proposed single-story buildings (not to exceed 20 feet) condensed on the relatively small (0.75-acre) parcel, which is set against a backdrop of large expanses of open agricultural land.

The proposed project, as sited and designed, also will not result in any appreciable alteration of any landforms. Although the project involves a certain amount of grading as well as fill placement to elevate the headworks parcel by approximately 4 feet to construct the proposed facility improvements, the improved facility will replace an existing fence and will not significantly alter the shape and form of the landscape from that which currently exists at the site.

Finally, the proposed project will be visually compatible with the character of the surrounding area. The proposed new buildings on the headworks site will be single-story and composed of pre-finished metal panels (for walls and roofing) and trim, which is not out of character with the type and scale of existing structures in the surrounding rural landscape (see plans and elevations within Exhibit No. 5). The Commission notes, however, that future alterations to the treatment facility's structural size, bulk, or height, or the installation of other fixtures or landscaping that change the exterior appearance of the project site could compromise the visual appearance of the treatment plant and result in significant adverse visual impacts to the site and surrounding area. The Commission notes that the development entails a "*public works facility*" as defined by Section 30114 of the Coastal Act. Although many types of alterations and improvements to existing structures are typically exempted from the need to obtain a coastal development permit under Coastal Section 30610(b), such improvements to public works facilities are not so excluded from the Act's permitting requirements. Accordingly, the Commission would be able to review such future additions or improvements to the treatment plant to ensure that visual impacts are minimized or avoided.

Special Condition No. 8 provides notice to the applicant of these existing requirements of law by stating that any future improvements or modifications to the sewage treatment plant facilities or other approved development will require a permit amendment to Coastal Development Permit No. 1-09-024 from the Commission. Notwithstanding the opportunity afforded the Commission to review such future development review opportunities, other changes to the exterior appearance of the facility structures and site, such as painting, siding applications, or roof replacement conducted as repair and maintenance activities exempted from the need to obtain a coastal development permit under Coastal Act Section 30610(d) could similarly alter the visual character of the development with corresponding impacts to the visual resources of the surrounding area. To avoid such impacts to coastal resources from the alteration of exterior appearance of the facility the Commission attaches **Special Condition No. 7**, which establishes specific design restrictions on certain building components of the treatment works facility to ensure that future improvements will not alter the exterior appearance of the facility in a manner that would result in significant adverse visual impacts. Additionally, the condition requires that all exterior lights be the minimum necessary for the safe ingress, egress, and use of the structures and be low-wattage, non-reflective, shielded, and have a directional cast downward to avoid new exterior lighting associated with the facility improvements shining skyward beyond the bounds of the parcel and creating excessive glow that would be out of character with the otherwise rural, open landscape.

Therefore, the Commission finds that the proposed development, as conditioned, will protect views to and along the ocean and scenic coastal areas, minimize the alteration of landforms, and be compatible with the character of the surrounding area, consistent with Section 30251 of the Coastal Act.

G. Public Access

Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions. Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety. In applying Sections 30211 and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

A portion of the project site (the northern project parcel) is located between the first public road (Port Kenyon Road) and the sea (the Salt River, which flows into the Eel River is considered to be an arm of the sea in this area). No existing public access to a beach or shoreline is available in the project area, and the proposed project does not involve any changes or additional restrictions to existing public access that would interfere with or reduce the amount of area public access and recreational opportunities.

Therefore, the project will have no significant adverse effect on public access, and the Commission finds that the project, as proposed without new public access, is consistent with the public access policies of the Coastal Act.

H. Other Agency Approvals

The project requires review and authorization by the U.S. Army Corps of Engineers. Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. On November 16, 2009, the Commission's North Coast District Office received a notice from the Corps that the project qualifies for Corps authorization under Nationwide Permit No. 3 (Maintenance).

The project also requires authorization from the Regional Water Quality Control Board and a Streambed Alteration Agreement from the Department of Fish and Game. To ensure that the project ultimately approved by the other agencies is the same as the project authorized herein, the Commission attaches **Special Condition Nos. 9 and 10**, which require the City to submit to the Executive Director evidence of these agencies' approvals of the project prior to permit issuance. The conditions require that any project changes resulting from these other agency approvals not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

I. Compliance with Sections 30412 & 30254.5 of the Coastal Act

The Commission's consideration of the development is: (1) undertaken pursuant solely to the authority duly granted to the Commission by the Coastal Act; (2) is limited to ensuring the approved development's conformance with the policies of the Coastal Act in a manner consistent with the limitations contained in Sections 30412(c) and 30254.5; and (3) in no way represents actions which modify, supplant, condition, or otherwise conflict with a determination of either the state or any regional water quality control board in matters relating to water quality or the administration of water rights.

J. California Environmental Quality Act

The City of Ferndale served as the lead agency for the project for CEQA purposes. The City adopted a mitigated negative declaration for the project on April 2, 2009.

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. Those findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts, which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

V. EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Assessor's Parcel Map
4. Aerial Photo
5. Project Plans
6. Outfall Pipe Replacement Plan
7. Proposed Construction Easements
8. Proposed Mitigation Measures (from CEQA Mitigated Negative Declaration)
9. Proposed Wetland Mitigation & Monitoring Plan

APPENDIX A

STANDARD CONDITIONS

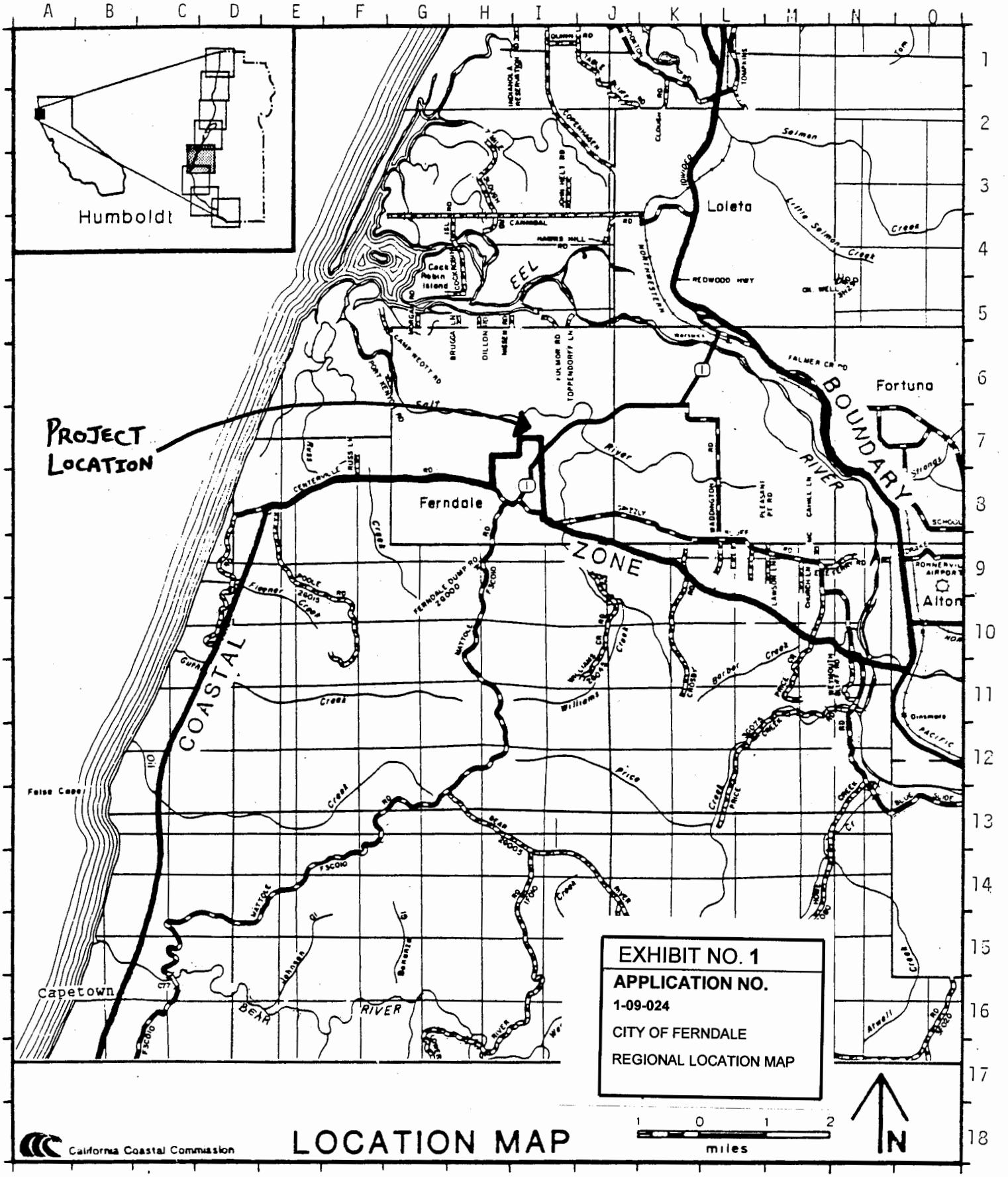
1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable amount of time. Application for extension of the permit must be made prior to the expiration date.

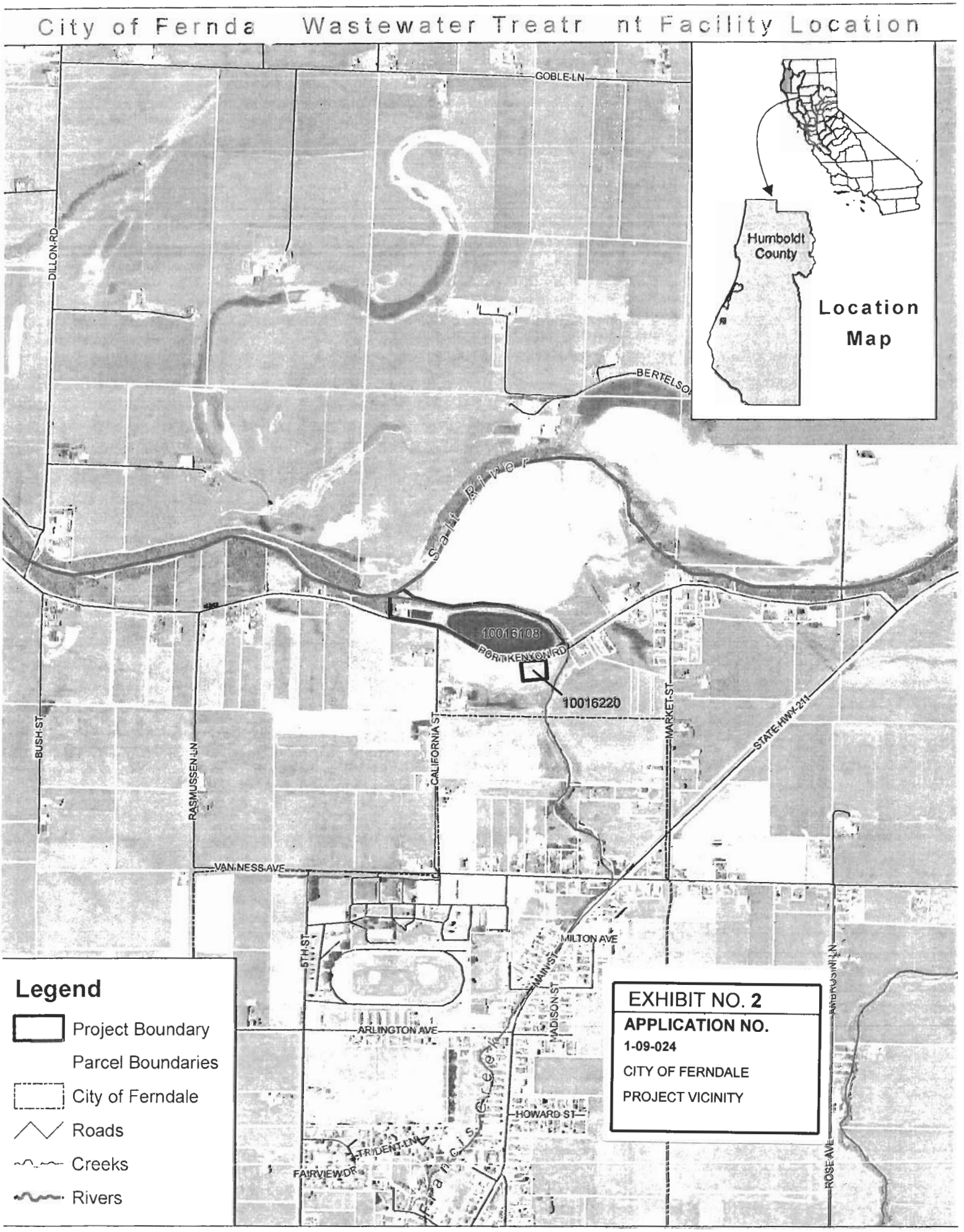
3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director of the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

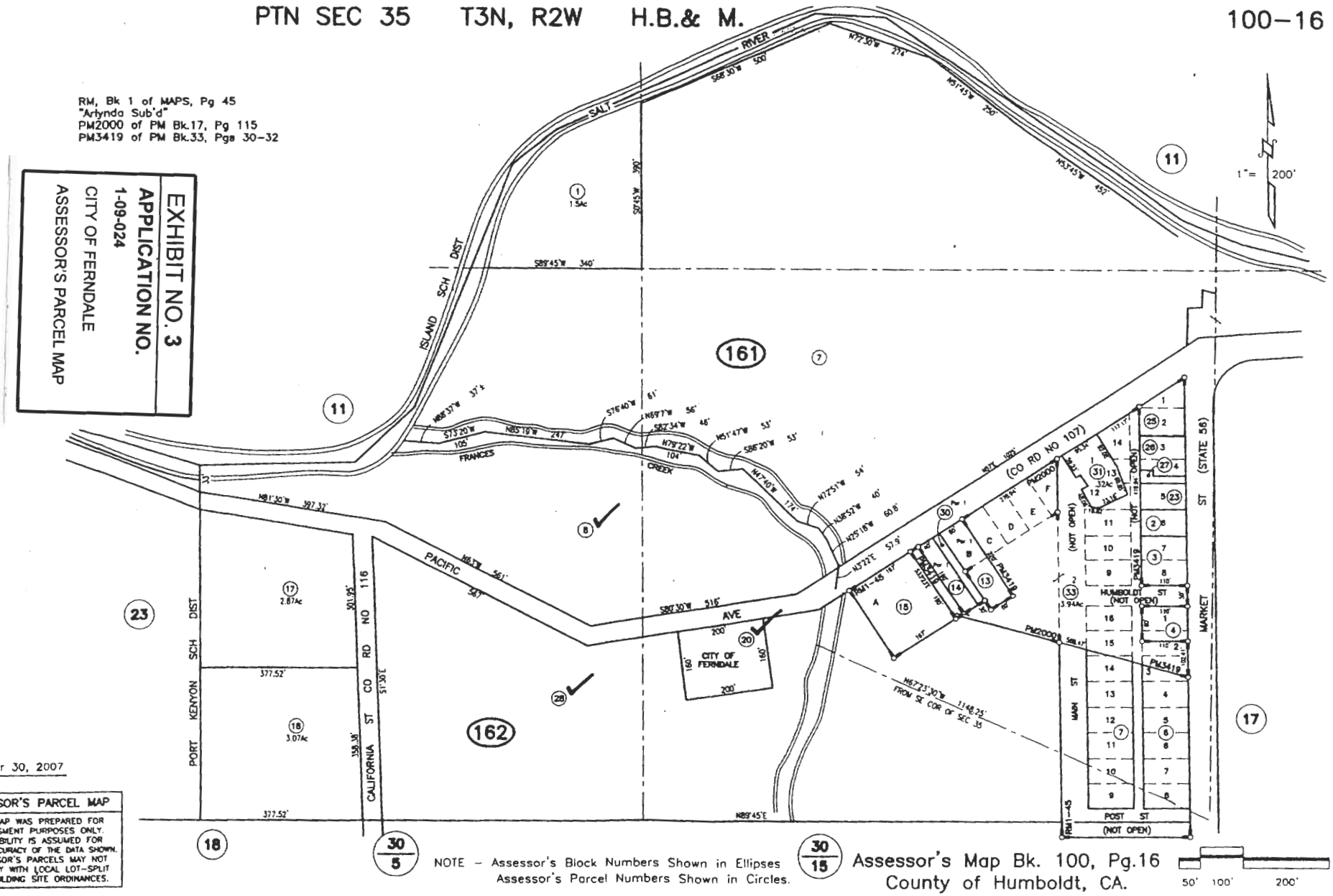


County of Humboldt


City of Ferndale Wastewater Treatment Facility Location
GOBLE LN
DILLON RD
BERTELSON
Salt River
Humboldt County
Location Map
10016108
PORTUGUESE KENYON RD
10016220
BUSH ST
RASMUSSEN LN
CALIFORNIA ST
MARKET ST
STATE HWY 211
VAN NESS AVE
5TH ST
MILTON AVE
MAIN ST
MADISON ST
ARLINGTON AVE
HOWARD ST
TRIDENT LN
FAIRVIEW DR
Francis Creek
ROSE AVE
Legend
Project Boundary
Parcel Boundaries
City of Ferndale
Roads
Creeks
Rivers
EXHIBIT NO. 2
APPLICATION NO.
1-09-024
CITY OF FERNDALE
PROJECT VICINITY
Map Compiled by Planwest Partners
January 13, 2009
0 500 1,000 2,000 Feet
PLANWEST PARTNERS, INC.

PTN SEC 35 T3N, R2W H.B.& M.

100–16



Apr 30, 2007

ASSESSOR'S PARCEL MAP

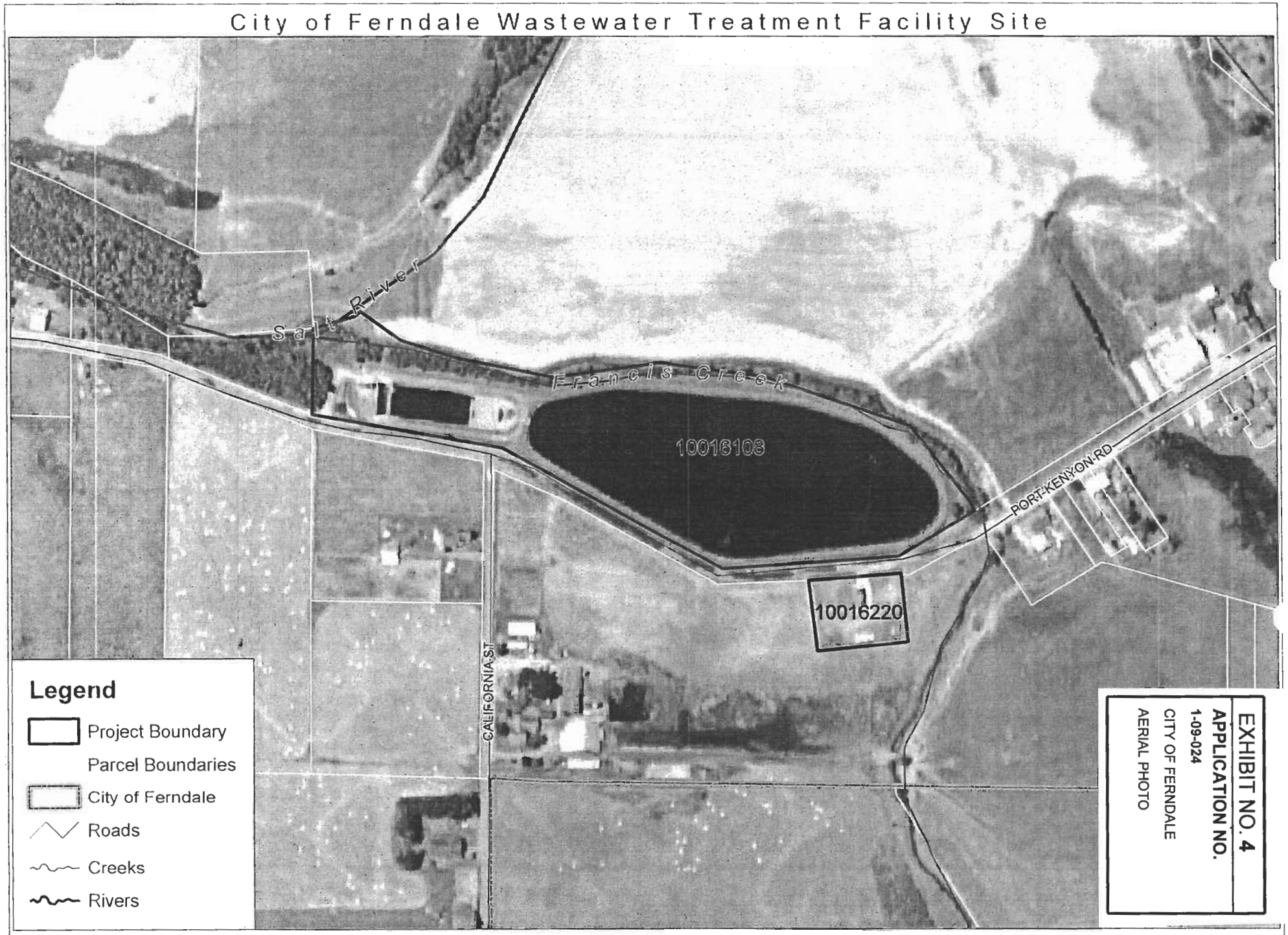
1. THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY.
2. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN.
3. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

Assessor's Map Bk. 100, Pg.16
County of Humboldt, CA.

50' 100' 200'

City of Ferndale Wastewater Treatment Facility Site



PROPOSED IMPROVEMENTS FOR

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

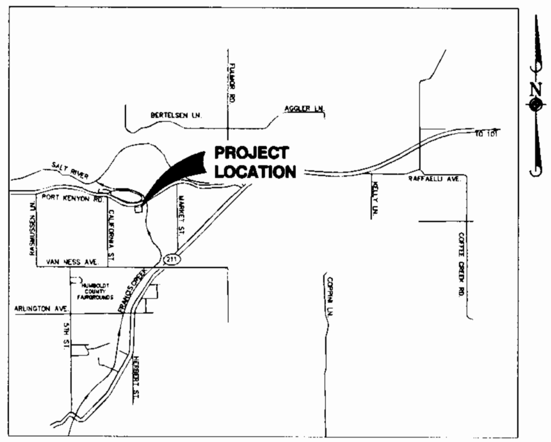
CONTRACT NO. 1
CITY OF FERNDALE, CALIFORNIA

EXHIBIT NO. 5
APPLICATION NO.
1-09-024
CITY OF FERNDALE
PROJECT PLANS (1 of 30)

FERNDALE CITY COUNCIL
1. JEFF FARLEY – MAYOR
2. STUART TITUS – VICE MAYOR
3. NIELS LORENZEN
4. KEN MIERZWA
5. MICHAEL MORELAND

CITY MANAGER
JAY PARRISH

CHIEF OPERATOR – WASTEWATER TREATMENT PLANT
DOUGLAS CULBERT



LOCATION MAP
N.T.S.

NOVEMBER 2009

CITY OF FERNDALE CITY HALL – (707) 786-4224
HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT – (707) 445-7491
HUMBOLDT COUNTY PUBLIC WORKS ENCROACHMENT PERMITS – (707) 445-7205
DEL ORO WATER COMPANY – (707) 786-9080
PACIFIC GAS & ELECTRIC COMPANY – (800) 468-4743
CITY OF FERNDALE POLICE DEPARTMENT – (707) 786-4025
SUDDENLINK CABLE SERVICE – (877) 794-2724

STANDARD SYMBOLS

EXISTING / PROPOSED

STORM SEWER
SANITARY SEWER
FORCEMAIN
PVC STORM SEWER
WATER MAIN
ELECTRIC
GAS
TELEPHONE
SANITARY MANHOLE
STORM MANHOLE
CATCH BASIN
STORM INLET
CLEANOUT
HAY BALES
RIP RAP
90° ELBOW
VALVE IN BOX
FIRE HYDRANT
WATER MAIN TEE
AIR RELEASE VALVE
FLARED END SECTION
STREET LIGHT
SUMMIT
LOW POINT
RIM/INVERT ELEVATION
ELEVATION OF TOP OF CURB AT STRUCTURE/INVERT ELEVATION
DITCH OR SWALE DIRECTION OF FLOW
OVERFLOW RELIEF SWALE
1 FOOT CONTOURS
CURB AND GUTTER
DEPRESSED CURB AND GUTTER
REVERSE CURB AND GUTTER
SIDEWALK
ACCESSIBLE CURB RAMP
PROPERTY LINE
MAIL BOX
SIGN
TRAFFIC SIGNAL
POWER POLE
GUY WIRE
GAS VALVE
HANDHOLE
ELECTRICAL EQUIPMENT
TELEPHONE EQUIPMENT
CHAIN-LINK FENCE
SPOT ELEVATION
BRUSH/TREE LINE
DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)
CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)
SILT FENCE
RETAINING WALL

ABBREVIATIONS

ADJ	ADJUST
AGG.	AGGREGATE GRAVEL
B.A.M.	BIT. AGG. MIXTURE
B-B	BACK TO BACK
B/P	BOTTOM OF PIPE
B/W	BACK OF WALK
BB	BUFFALO BOX
BIT.	BITUMINOUS CONCRETE
BM	BENCHMARK
B.O.	BY OTHERS
C.E.	COMMERCIAL ENTRANCE
CB	CATCH BASIN
CL	CENTERLINE
CLID	CLOSED LID
CMP	CORRUGATED METAL PIPE
CNTRL	CONTROL
CONC.	CONCRETE
CY	CUBIC YARD
D	DITCH
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
DIWM	DUCTILE IRON WATER MAIN
DT	DRAIN TILE
E	ELECTRIC
E-E	EDGE TO EDGE
ELEV.	ELEVATION
E/P	EDGE OF PAVEMENT
EX.	EXISTING
F.E.	FIELD ENTRANCE
F-F	FACE TO FACE
F/F	FINISHED FLOOR
FES	FLARED END SECTION
F/L	FLOW LINE
FM	FORCE MAIN
G	GROUND
GAS	GAS
G/F	GRADE AT FOUNDATION
GW	GUY WIRE
HDWL	HEADWALL
HH	HANDHOLE
HWL	HIGH WATER LEVEL
HYD.	HYDRANT
INL	INLET
INV.	INVERT
IP	IRON PIPE
MAX.	MAXIMUM
MB	MAILBOX
MH	STORM MANHOLE
MIN.	MINIMUM
NWL	NORMAL WATER LEVEL
OLID	OPEN LID
P.E.	PRIVATE ENTRANCE
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
P	PAVEMENT
R	RADIUS
R.O.W.	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
REM	REMOVAL
RR	RAILROAD
RT	RIGHT
SAN	SANITARY SEWER
SF	SQUARE FOOT
SHLD.	SHOULDER
SL	STREET LIGHT
SMH	SANITARY MANHOLE
ST	STORM SEWER
STA.	STATION
STD	STANDARD
SW	SIDEWALK
SY	SQUARE YARDS
TBR	TO BE REMOVED
T	TELEPHONE
T-A	TYPE A
T/C	TOP OF CURB
T/F	TOP OF FOUNDATION
T/P	TOP OF PIPE
T/W	TOP OF WALK
T/WALL	TOP OF WALL
TEMP	TEMPORARY
TRANS	TRANSFORMER
VB	VALVE BOX
VV	VALVE VAULT
WL	WATER LEVEL
WM	WATER MAIN

Manhard CONSULTING LTD

APPROVALS:

CITY OF FERNDALE ENGINEER — DATE

REGIONAL WATER QUALITY CONTROL BOARD — DATE

BENCHMARK AND BASIS OF BEARING:
EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY "SPENCER ENGINEERING" ON 10-20-2000. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.

Avoid cutting underground utility lines. It's costly.
Call before you Dig
1-800-227-2600
UNDERGROUND SERVICE (USA)

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
COVER SHEET

10/28/09

SHEET G-1

PENDING APPROVAL - NOT FOR CONSTRUCTION

DRAWING No.	DESCRIPTION
GENERAL	
G-1	COVER SHEET
G-2	INDEX TO DRAWINGS
G-3	GENERAL NOTES
G-4	GENERAL PLAN
G-5	BORING LOCATION PLAN
G-6	DEMOLITION PLAN
G-7	DEMOLITION PLAN DETAILS
G-8	SITE LOCATION PLAN
G-9	HYDRAULIC PROFILE
CIVIL	
C-1	EXISTING YARD PIPING PLAN
C-2	PROPOSED YARD PIPING PLAN
C-3	SITE GRAVITY SEWER PROFILES
C-4	EFFLUENT GRAVITY SEWER PLAN & PROFILE STA. 0+70 TO 7+00
C-5	EFFLUENT GRAVITY SEWER PLAN & PROFILE STA. 7+00 TO 12+74
C-6	WATER LINE PLAN & PROFILE STA 0+00 TO 5+50
C-7	POND FEED & WITHDRAWAL PLAN & PROFILE
C-8	PROPOSED PROCESS PIPING SCHEMATIC
C-9	EXISTING GRADING PLAN
C-10	PROPOSED GRADING PLAN
C-11	ENVIRONMENTAL PROTECTION PLAN
C-12	ENVIRONMENTAL PROTECTION PLAN DETAILS 1
C-13	ENVIRONMENTAL PROTECTION PLAN DETAILS 2
C-14	DRAWING NOT USED
C-15	DRAWING NOT USED
C-16	DRAWING NOT USED
C-17	YARD PIPING DETAILS 1
C-18	YARD PIPING DETAILS 2
C-19	YARD PIPING DETAILS 3
C-20	YARD PIPING DETAILS 4
C-21	MISCELLANEOUS DETAILS 1
C-22	MISCELLANEOUS DETAILS 2
C-23	MISCELLANEOUS DETAILS 3
STRUCTURAL	
S-1	AERATION/CLARIFIER/DIGESTER PLAN VIEW
S-2	AERATION/CLARIFIER/DIGESTER FOUNDATION
S-3	AERATION/CLARIFIER/DIGESTER DETAILS
S-4	AERATION/CLARIFIER/DIGESTER SECTIONS
S-5	AERATION/CLARIFIER/DIGESTER DETAILS
S-6	AERATION/CLARIFIER/DIGESTER DETAILS
S-7	AERATION/CLARIFIER/DIGESTER NOTES

DRAWING No.	DESCRIPTION
ARCHITECTURAL	
A-1	FILTER BUILDING FLOOR PLAN
A-2	FILTER BUILDING ELEVATIONS & ABBRV.
A-3	FILTER BUILDING ELEVATIONS
A-4	FILTER BUILDING FOUNDATION PLAN
A-5	FILTER BUILDING SCHEDULES & DETAILS
A-6	FILTER BUILDING CABINET DETAILS
A-7	GARAGE BUILDING
A-8	GARAGE BUILDING ELEVATIONS
MECHANICAL	
M-1	MASTER LIFT STATION PLAN & SECTION A-A
M-2	MASTER LIFT STATION SECTIONS
M-3	AERATION/DIGESTER/CLARIFIER PLAN VIEW
M-4	AERATION/DIGESTER/CLARIFIER SECTIONS A-A & B-B
M-5	AERATION/DIGESTER/CLARIFIER SECTIONS C-C & D-D
M-6	AERATION/DIGESTER/CLARIFIER SECTIONS E-E & F-F
M-7	AERATION/DIGESTER/CLARIFIER SECTIONS G-G, H-H & I-I
M-8	AERATION/DIGESTER/CLARIFIER DETAILS 1
M-9	AERATION/DIGESTER/CLARIFIER DETAILS 2
M-10	AERATION/DIGESTER/CLARIFIER WALKWAY PLAN & DETAILS
M-11	AERATION/DIGESTER/CLARIFIER PNEUMATIC PIPING DIAGRAM
M-12	FILTER BUILDING PLAN
M-13	FILTER BUILDING SECTIONS LAYOUT & SECTION A-A
M-14	FILTER BUILDING SECTIONS B-B, C-C, & D-D
M-15	FILTER BUILDING SECTIONS E-E, F-F, G-G, & H-H
M-16	FILTER BUILDING DETAILS 1
M-17	FILTER BUILDING DETAILS 2
M-18	FILTER BUILDING DETAILS 3
M-19	EFFLUENT PUMP STATION PLAN
M-20	EFFLUENT PUMP STATION DETAILS A & B
M-21	EFFLUENT PUMP STATION SECTIONS A-A, B-B, C-C, & D-D
M-22	MECHANICAL DETAILS 1
HEATING, VENTILATION	
HV-1	FILTER BUILDING - HVAC PLAN
HV-2	HVAC - SCHEDULE AND DETAIL
PLUMBING	
P-1	FILTER BUILDING UNDERFLOOR PLUMBING PLAN
P-2	FILTER BUILDING PLUMBING PLAN
P-3	FILTER BUILDING PLUMB SCHEDULES AND RISERS

DRAWING No.	DESCRIPTION
ELECTRICAL	
E-1	OVERALL ELECTRICAL SITE PLAN
E-2	PARTIAL ELECTRICAL SITE PLAN
E-3	FILTER BUILDING POWER AND CONTROL WIRING PLAN
E-4	FILTER BUILDING LIGHTING PLAN
E-5	GARAGE BUILDING, EFFLUENT PUMP STATION ELECTRICAL PLANS
E-6	POWER AND CONTROL WIRING RISER DIAGRAMS
E-7	ELECTRICAL SCHEDULES
E-8	ELECTRICAL SCHEDULES AND SYMBOLS

Manhard CONSULTING

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

CITY OF FERNDALE, CALIFORNIA

INDEX TO DRAWINGS

10/28/09

10-28-09

G-2

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS - NOT FOR CONSTRUCTION

GENERAL NOTES

1. LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE BASED UPON AVAILABLE INFORMATION REVIEWED AT THE TIME OF DOCUMENT PREPARATION. THIS INFORMATION MAY NOT BE OF SUITABLE ACCURACY OR CORRECTNESS FOR THE CONTRACTOR'S CONSTRUCTION NEEDS. THEREFORE, THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING THE WORK PRIOR TO CONSTRUCTION.

2. WHERE REQUIRED THE RESIDENT ENGINEER WILL PROVIDE MASTER SURVEY CONTROL POINTS, INCLUDING ELEVATIONS AND GRID SYSTEM COORDINATES. HOWEVER, CONSTRUCTION STAKING IS THE RESPONSIBILITY OF THE CONTRACTOR. COSTS FOR ANY RESETTING OF MASTER CONTROL POINTS MADE NECESSARY AS A RESULT OF CONSTRUCTION DISTURBANCE SHALL BE PAID BY THE CONTRACTOR.

3. SUBSURFACE INFORMATION, WHEN AVAILABLE, MAY BE REVIEWED IN THE OFFICE OF THE RESIDENT ENGINEER, AND MAY BE OBTAINED AT THE COST OF REPRODUCTION.

4. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL AFFECTED FEDERAL, STATE, LOCAL, AND PRIVATE ENTITIES POTENTIALLY AFFECTED. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE OF WHEN CONSTRUCTION WILL COMMENCE IN ALL AREAS IN ORDER TO PERMIT FIELD LOCATION OF UTILITY LINES PRIOR TO CONSTRUCTION. A TOLL FREE NUMBER 1-800- 227-2600 IS AVAILABLE TO ASSIST IN SUCH COORDINATION EFFORTS. THIS NUMBER IS PART OF THE UTILITY NOTIFICATION PROGRAM COMMONLY REFERRED TO AS "CALL BEFORE YOU DIG", BUT DOES NOT TOTALLY REPRESENT ALL UTILITIES POTENTIALLY AFFECTED. ALL UTILITIES SHALL BE KEPT IN OPERATION EXCEPT WITH THE EXPRESS WRITTEN CONSENT OF THE UTILITY OWNER. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE EXISTING UTILITIES, AND ALL DAMAGE TO EXISTING UTILITIES AS A RESULT OF THE CONTRACTORS ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE A REVIEW OF THE SITE TO DETERMINE EXISTING CONDITIONS AND ANYTHING NOT COVERED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER AND SHALL NOT CONSTITUTE AN EXTRA, UNLESS APPROVED IN WRITING.

6. THE CONTRACTOR SHALL REPLACE ALL PAVING, STABILIZED EARTH, DRIVEWAYS, SIDEWALKS, CURBS, FENCES, LAWNS, SHRUBS, ETC., DAMAGED DURING CONSTRUCTION, WITH THE SAME TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP AS PREVIOUSLY EXISTED. COST FOR RESTORATION OF ITEMS NOT SPECIFICALLY ADDRESSED IN THE BID FORM SHALL BE INCLUDED IN THE PER FOOT COST OF PIPE INSTALLATION.

7. THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE RESIDENT ENGINEER UPON DISCOVERY OF CONFLICTS BETWEEN THE CONTRACT REQUIREMENTS AND ACTUAL CONSTRUCTION CONDITIONS.

8. ALL BURIED PIPELINES, CONDUITS, CABLES, ETC. SHALL HAVE A MINIMUM COVER OF 36 INCHES BELOW FINISHED GRADE UNLESS OTHERWISE CALLED FOR. ALL FITTINGS AND ACCESSORIES SHALL BE INSTALLED IN CONFORMANCE WITH APPLICABLE LOCAL CODES AND REQUIREMENTS PLUS THESE CONTRACT DOCUMENTS.

9. REFER TO SPECIFIC PORTIONS OF THE CONTRACT DOCUMENTS FOR SPECIFIC CONSTRUCTION REQUIREMENTS.

GENERAL PIPING NOTES

1. UNLESS OTHERWISE CALLED FOR BURIED PIPING SHALL HAVE A MINIMUM COVER OF 30 INCHES.

2. ALL ABOVE GROUND PIPING, UNLESS SPECIFICALLY EXEMPTED SHALL HAVE FLANGED, WELDED, SCREWED, OR OTHER RIGID CONNECTIONS AS APPROVED AND DIRECTED BY THE ENGINEER.

3. ALL BURIED PIPING 4-INCHES IN DIAMETER OR LARGER UNLESS SPECIFICALLY EXEMPTED, SHALL UTILIZE GASKETED FLEXIBLE JOINTS.

4. ALL BURIED PIPING 3-INCHES IN DIAMETER OR SMALLER, NEED NOT HAVE GASKETED FLEXIBLE JOINTS.

5. UNLESS SPECIFICALLY CALLED FOR ALL PIPING GREATER THAN 12-INCHES IN DIAMETER SHALL BE EPOXY-COATED (FACTORY APPLIED) DUCTILE IRON. SMALLER PIPE MAY BE EPOXY-COATED (FACTORY APPLIED) DUCTILE IRON OR PVC, DEPENDING ON LOCATION AND JOINT REQUIREMENTS, AND SUBJECT TO THE ENGINEERS APPROVAL.

6. PVC PIPE SHALL NOT BE USED ON ABOVE GROUND AND STRUCTURE PENETRATION APPLICATIONS, WITH THE EXCEPTION OF CHEMICAL SOLUTION LINES.

7. ALL PIPING SHALL BE WATERTIGHT AND PRESSURE TESTED, UNLESS SPECIFICALLY EXEMPTED.

8. ALL TEES, CROSSES, PLUGS, BENDS (HORIZONTAL AND VERTICAL), DEFLECTING 11-1/4 DEG. OR MORE, SHALL BE INSTALLED WITH RESTRAINED JOINTS.

9. WATER AND WASTEWATER SYSTEMS SHALL NOT BE PLACED INTO SERVICE, EXCEPT FOR TEMPORARY TESTING, UNTIL ALL TESTS, INSPECTIONS, REPORTS, RECORD DRAWINGS, AND CERTIFICATIONS HAVE BEEN COMPLETED AND REQUIRED APPROVALS OBTAINED FROM APPROPRIATE REGULATORY AGENCIES.

10. THE SIZE OF FITTINGS SHALL CORRESPOND TO THE ADJACENT RUN OF PIPE, UNLESS OTHERWISE CALLED FOR.

11. PIPE SHALL BE LAID AT UNIFORM GRADE BETWEEN INDICATED POINTS.

12. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS INDICATED.

13. ALL FLEXIBLE CONNECTORS ON FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS. UNLESS OTHERWISE NOTED, THRUST PROTECTION SHALL BE ADEQUATE FOR THE TEST PRESSURES SPECIFIED.

14. NUMBER AND LOCATION OF UNIONS SHOWN IS ONLY APPROXIMATE. THE CONTRACTOR SHALL PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.

15. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS INDICATED, A STANDARD FLANGE SHALL BE USED TO JOIN THE COUPLING ADAPTER.

16. SPECIAL PIPE FOUNDATIONS, IF REQUIRED, SHALL BE DETERMINED IN THE FIELD AND THE TYPE REQUIRED SHALL BE REVIEWED BY THE RESIDENT ENGINEERS.

ENVIRONMENTAL PROTECTION NOTES

1. THE CONTRACTOR SHALL PREPARE A PROJECT SPECIFIC STORMWATER POLLUTION PREVENTION PLAN THAT DETAILS THE BEST MANAGEMENT PRACTICES THAT THE CONTRACTOR PROPOSES TO USE.

2. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED IN WETLAND AREAS UNLESS SUCH CONSTRUCTION PRACTICES ARE APPROVED IN A PLAN OF OPERATION SUBMITTED IN ACCORDANCE WITH APPLICABLE SPECIFICATION SECTIONS.

3. PRIOR TO COMMENCING CONSTRUCTION ACROSS OR ADJACENT TO WETLAND JURISDICTIONAL AREAS, SILT BARRIERS SHALL BE INSTALLED AS SHOWN ON THE PLANS AREAS, AS REQUIRED TO PROTECT WETLAND AREAS. SILT BARRIERS SHALL BE CONSIDERED AS LIMITS OF CONSTRUCTION WITHIN OR ADJACENT TO JURISDICTIONAL AREAS. WETLAND JURISDICTIONAL AREAS SHOWN ON THE PLANS WHICH ARE ADJACENT TO THE WORK AND NOT PROTECTED BY SILT BARRIERS SHALL BE CLEARLY DELINEATED ON THE SITE, ENDURE THROUGHOUT CONSTRUCTION, AND BE DISCERNIBLE TO CONSTRUCTION PERSONNEL.

4. STAKED OR FLOATING SILT SCREENS OR HAY BALES SHALL BE UTILIZED AS SILT BARRIERS AND PLACED IN LOCATIONS SHOWN ON THE PLANS AND AT OTHER LOCATIONS AS REQUIRED TO KEEP SEDIMENT FROM REACHING WATER BODIES OR WETLAND AREAS. THESE BARRIERS SHALL BE INSTALLED PRIOR TO COMMENCING WITH ANY CONSTRUCTION WITHIN OR ADJACENT TO JURISDICTIONAL AREAS. THE CONTRACTOR SHALL MONITOR AND MAINTAIN ALL SILT BARRIERS, INCLUDING DAILY INSPECTIONS, TO CHECK THEIR INTEGRITY. ANY LOOSE OR DAMAGED SILT BARRIERS SHALL BE IMMEDIATELY REPAIRED OR REPLACED, AS NECESSARY. ONCE CONSTRUCTION IS COMPLETED AND FINISH GRADING AND STABILIZATION HAS BEEN ACHIEVED, SILT BARRIERS SHALL BE COMPLETELY REMOVED, AREAS AFFECTED BY THE CONSTRUCTION RESTORED, TO THE SATISFACTION OF THE OWNER, PRIOR TO FINAL ACCEPTANCE.

5. ALL WATER COLLECTED AND PUMPED DURING DEWATERING ACTIVITIES SHALL BE DISPOSED OF IN UPLAND AREAS INTO DOUBLE STAKED HAY BALES OR DEWATERING IMPOUNDMENTS. DISCHARGE LOCATIONS SHALL BE A MINIMUM OF 75 FEET FROM THE NEAREST WATER BODY OR WETLAND AREA, TO ALLOW FOR MAXIMUM OVERLAND FILTRATION OF SOIL PARTICLES.

6. EXCAVATION ACROSS ALL WETLANDS SHALL BE ACCOMPLISHED BY STRIPPING THE TOP 10-INCHES OF SURFACE SOILS FROM THE FULL WIDTH OF THE AREA TO BE DISTURBED. SURFACE SOILS SHALL BE STOCKPILED IN UPLAND AREAS. THE REMAINING EXCAVATIONS NECESSARY FOR CONSTRUCTION WILL BE SEPARATELY STOCKPILED. BACKFILLING OPERATIONS SHALL PROCEED SUCH THAT SUBSOIL SOILS ARE REPLACED LAST AND SHALL BE SPREAD ACROSS THE ENTIRE DISTURBED WETLAND AREA TO HELP PROMOTE THE GROWTH OF NATIVE VEGETATION. SUBSOIL SOILS SHALL NOT BE STOCKPILED IN EXCESS OF TWO WEEKS. FURTHERMORE, ALL ASPECTS OF BACKFILLING GRADING, AND BEDDING SHALL BE COMPLETE WITHIN 30-DAYS OF THE INITIAL WETLAND IMPACT FOR EACH JURISDICTIONAL AREA DISTURBED.

7. TEMPORARY STOCKPILES SHALL NOT BE LOCATED ADJACENT TO WETLANDS WHERE SEDIMENTATION FROM STOCKPILES MAY CAUSE DAMAGE TO WETLANDS. ADDITIONALLY, SILT BARRIERS SHALL CONTINUOUSLY AND FULLY ENCIRCLE ALL STOCKPILES, WHICH WILL REMAIN FOR LONGER THAN 24 HOURS, TO CONTAIN MATERIALS WITHIN A REASONABLY CONFINED AREA.

8. BANKS SHALL BE PROTECTED FROM EROSION OR COLLAPSE DURING CONSTRUCTION. BANK PROTECTION MATERIAL SHALL BE CAREFULLY PLACED FROM THE BANK AND NOT DUMPED FROM ABOVE IN AN UNCONTROLLED MANNER. SANDBAGS SHALL BE USED FOR EROSION CONTROL WHERE SOD WILL NOT HOLD OR BECOME ESTABLISHED IN TIME TO PROTECT THE BANKS. UPON COMPLETION OF CONSTRUCTION, BANKS AND WATERWAYS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONFIGURATION AND PROTECTED FROM EROSION.

9. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHOUT COORDINATING SUCH REMOVAL WITH THE OWNERS REPRESENTATIVE. IF ANY TREES ARE REMOVED IN WETLAND JURISDICTIONAL AREAS WITHOUT PROPER AUTHORIZATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING, AND OBTAINING APPROVAL OF A DETAILED RESTORATION AND/OR MITIGATION PLAN, FROM THE APPROPRIATE REGULATORY AGENCY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR COMPLETING ALL MONITORING AND MAINTENANCE ACTIVITIES IMPOSED AS A RESULT OF UNAUTHORIZED TREE REMOVAL.

WATER/SEWER CLEARANCE REQUIREMENTS

1. SEWERS CROSSING WATER MAINS

GRAVITY SEWERS OR FORCE MAINS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS AND WATER JOINTS WILL BE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN 10 FEET BETWEEN ANY TWO JOINTS, WHERE THE MINIMUM 18-INCH SEPARATION CANNOT BE MAINTAINED, THE SEWER SHALL BE PLACED IN A STEEL SLEEVE, 20 FEET CENTERED ON THE POINT OF CROSSING.

WHERE THERE IS NO ALTERNATIVE TO SEWER PIPES CROSSING OVER WATER MAINS, THE PIPES SHALL BE CENTERED AT THE CROSSING AS DESCRIBED ABOVE, AND THE WATER MAIN SHALL BE PLACED IN A STEEL SLEEVE FOR 20 FEET CENTERED ON THE POINT OF CROSSING. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.

2. SEWERS PARALLELING WATER MAINS

SEWERS SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAINS UNLESS OTHERWISE NOTED OR DIRECTED. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10 FOOT SEPARATION, A JOINTLESS (FUSION WELDED) WATER MAIN SHALL BE INSTALLED IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON THE SIDE OF THE SEWER AND AT AN ELEVATION SO THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

3. FORCE MAINS SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN, UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED.

4. ALL PVC WASTEWATER FORCE MAINS SHALL HAVE CONTINUOUS DETECTOR TAPE 18 INCHES ABOVE THE MAIN. DETECTOR TAPE SHALL HAVE GREEN SIDE UP. ALSO A CONTINUOUS 10 GAUGE SINGLE STRAND, INSULATED, UF RATED (DIRECT BURIAL) COPPER WIRE SHALL BE STRAPPED TO THE PIPE WITH PLASTIC ZIPPER TIES @ 10 FT. INTERVALS. THE WIRE SHALL BE BROUGHT UP OUTSIDE ALL VALVES LEAVING AN EXCESS OF + FT. OF WIRE COILED AT EACH VALVE. AT THE PRESSURE TESTING OF THE FORCE MAINS THE CONTRACTOR SHALL PERFORM A CONTINUITY TEST. THE TEST IS TO BE WITNESSED AND APPROVED BY BOTH THE OWNER AND THE RESIDENT ENGINEER.

DISINFECTION OF NEW OR RELOCATED WATER LINES

1. BACTERIOLOGICAL SAMPLING/DISINFECTION OF ALL NEW AND RELOCATED WATER MAINS SHALL BE IN ACCORDANCE WITH AWS/AWWA SPECIFICATION C601-02. OWNER PERSONNEL OR APPROPRIATE PERSONNEL FROM THE UTILITY OWNER MUST BE PRESENT AT THE TIME OF CHLORINATION AND FLUSHING.

SPECIFIC NOTES

1. ALL PAVED COUNTY ROADS TO BE CROSSED UNLESS OTHERWISE NOTED ON PLANS, DRIVEWAYS MAY EITHER BE OPEN CUT, DIRECTIONAL BORE OR JACK & BORE PER HUMBOLDT COUNTY PUBLIC WORKS REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS.

2. ALL FORCE MAIN PIPES SHALL BE EPOXY-COATED (FACTORY APPLIED) DUCTILE IRON PIPE AWWA C151/ ANSI A21.51 (LATEST REVISION) CLASS 350 OR PVC PIPE AWWA C900-LATEST REVISION CLASS 150 (GREEN COLOR). DIP SHALL HAVE A CONTINUOUS 3" WIDE GREEN STRIPE AND SHALL BE LAID WITH THE GREEN STRIPE UP.

SPECIAL INSTRUCTIONS

1. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAM AND SEEDED AS SPECIFIED.

2. ALL PROPERTY IN THE RIGHT-OF-WAY, INCLUDING DRAINAGE STRUCTURES AND MITERED ENDS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.

3. GRADES SHOWN ARE FINISHED GRADES.

4. EXISTING (VALVE BOXES, METER BOXES, MANHOLES, ETC.) SHALL BE ADJUSTED TO THE FINAL GRADE AS DIRECTED BY THE RESIDENT ENGINEER.

5. ANY MONUMENT WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY THE OWNER/RESIDENT ENGINEER.

6. ALL STATIONS AND OFFSETS ARE REFERENCED TO THE BASELINE OF SURVEY. DEPTHS ARE REFERENCED TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED IN THE PLANS.

7. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE RESIDENT ENGINEER WITHOUT DELAY, AND PROCEED AS INSTRUCTED BY HIM.

8. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD TRANSMISSION LINES OR UNDERGROUND UTILITIES. CONTRACTOR SHALL HAVE ALL EXISTING BURIED UTILITIES LOCATED PRIOR TO EXCAVATION.

9. THE LOCATION OF THE PROPOSED FACILITIES SHOWN IN THE PLANS IS APPROXIMATE. LOCATION ADJUSTMENT SHALL BE DETERMINED BY THE RESIDENT ENGINEER DURING CONSTRUCTION BASED UPON FIELD CONDITIONS.

10. PRIOR TO COMMENCING CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED BY THE ENGINEER. THE FOLLOWING SHALL BE INCLUDED IN THE CONFERENCE. THE OWNER ENGINEERING AND UTILITIES DIVISIONS, THE CONTRACTOR, THE ENGINEER, AND ANY AFFECTED UTILITY COMPANIES.

11. THE DIP FORCE MAIN SYSTEM SHALL BE HYDROSTATICALLY PRESSURE TESTED, PRIOR TO BACKFILL OPERATIONS, FOR A PERIOD OF 2 HOURS AT NOT LESS THAN 150 PSI IN ACCORDANCE WITH AWS/AWWA STANDARD C600 WITH AN ALLOWABLE LEAKAGE AS DETERMINED BY THE FOLLOWING FORMULA.

$$\frac{S \times D \times \sqrt{(P)}}{133,200} = Q$$

D= SIZE OF LINE TESTED (DIAMETER IN INCHES)
S= LENGTH OF RUN IN FEET
P= AVERAGE TEST PRESSURE (P.S.I.)=TWICE WORKING PRESSURE
Q= ALLOWABLE LEAKAGE IN GALLON/HOUR
SQRT. = SQUARE ROOT

12. FORCE MAIN PIPE SHALL MEET THE REQUIREMENTS OF AWWA C-900A-LATEST REVISION POLYVINYL CHLORIDE (PVC) PRESSURE PIPE. SHALL CONFORM TO REQUIREMENT OF DR 18, PRESSURE CLASS 150. FURNISH PIPE IN GREEN COLOR.

13. PVC MAINS SHALL BE LAID WITH A MINIMUM OF 36" CLEAR COVER. FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON CLASS 350 THROUGH 12" AND CLASS 250 IN SIZES 16" AND LARGER (ANSI/AWWA C153/A21.53 – SHORT BODY TYPE) OR AWWA/ANSI C110/A21-10 (LATEST REVISION) EPOXY LINED.

14. DUCTILE IRON PIPE SHALL BE CLASS 350 AND SHALL BE AWWA/ANSI STANDARD C151/A21.51 (LATEST REVISION) EPOXY LINED AND SEALCOATED. D.I.P. MAINS SHALL BE LAID WITH A MINIMUM 36" CLEAR COVER. DUCTILE IRON FITTINGS SHALL BE CLASS 350 (SHORT BODY TYPE) THROUGH 12" AND CLASS 250 IN SIZES 16" AND LARGER. ALL FITTINGS SHALL BE MECHANICAL JOINT AWWA/ANSI C110/A21-4 (LATEST REVISION) & C153/A21-53 (LATEST REVISION) EPOXY LINED AND SEALCOATED THE SAME AS THE PIPE. FURNISH PIPE FOR FORCE MAIN WITH 3" WIDE GREEN STRIPE ALONG BODY OF PIPE. INSTALL PIPE WITH GREEN STRIPE "UP".

15. ALL DRIVEWAYS TO BE REPLACED IN KIND IF CROSSED BY OPEN-CUT. THE SOILS SHALL BE COMPACTED TO 95% OF ITS MAXIMUM LABORATORY MODIFIED DRY DENSITY, ASTM D1557. TEMPORARY RESTORATION SHALL BE COMPLETED IMMEDIATELY FOLLOWING PIPE INSTALLATION. PERMANENT RESTORATION SHALL NOT BE MADE TO FORCE MAINS UNTIL SUCH TIME AS PRESSURE TESTS ARE COMPLETED. PERMANENT RESTORATION SHALL BE COMPLETED WITHIN 5 DAYS AFTER PRESSURE TESTS ARE COMPLETED AND ACCEPTED BY OWNER.

16. LOAM AND SEED ALL PIPE TRENCHES IN GRASSED AREAS USING LIKE KIND (PRESERVE EXISTING SURFACE DRAINAGE). TRENCH BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM LABORATORY MODIFIED DRY DENSITY, ASTM D1557 UNLESS OTHERWISE SPECIFIED. MEASUREMENT WILL BE THE LENGTH MULTIPLIED BY THE WIDTH NOT TO EXCEED 3 FT. FOR PIPELINES UP TO AND INCLUDING 12 INCH DIAMETER.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL FULLY RESTRAIN ALL PIPE JOINTS WHERE DIRECTIONAL CHANGES OCCUR, SUCH AS AT TEES, BENDS, ETC. IN ACCORDANCE WITH THE RESTRAINED JOINT DETAIL TABLE SHOWN IN THE SPECIFICATIONS AND/OR CONTRACT DRAWINGS.

SPECIAL NOTES:

1. CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE INSTALLED LOCATION OF PROPOSED STRUCTURES ARE COMPLETELY WITHIN THE PROPERTY BOUNDARIES AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SURVEYOR REGISTERED IN THE STATE OF CALIFORNIA, TO PROVIDE CONSTRUCTION STAKE OUT AND AS-BUILT LOCATIONS OF INSTALLED STRUCTURES TO VERIFY THAT STRUCTURES ARE WITHIN THE PROPERTY BOUNDARIES, PRIOR TO BACKFILLING. SURVEYOR SHALL BE ON-SITE DURING THE INSTALLATION OF STRUCTURES.

2. THE CONTRACTOR SHALL PRESSURE TEST PIPING BETWEEN ISOLATION VALVES OR IN INTERVALS NOT GREATER THAN 1000 FT. PRESSURE TESTS SHALL BE PERFORMED AS SOON AS THAT LENGTH OF PIPE HAS BEEN INSTALLED. PRESSURE TEST RESULTS AND CERTIFIED AS-BUILTS SHALL BE SUPPLIED TO THE OWNER WITH REQUESTS FOR PAYMENT FOR INSTALLED PIPING. RESTORATION, INCLUDING DRIVEWAYS, LOAMING & SEEDING, ETC. SHALL COMMENCE IMMEDIATELY AFTER SATISFACTORY PRESSURE TEST RESULTS ARE ACHIEVED. NO PIPING TRENCH BACKFILL SHALL COMMENCE PRIOR TO SATISFACTORY COMPLETION OF EACH PRESSURE TEST SECTION. ALL MAINTENANCE OF TRAFFIC (M.O.T.) INCIDENTALS SHALL REMAIN IN-PLACE UNTIL SATISFACTORY COMPLETION OF ROADWAY PIPING TRENCH BACKFILL.

3. THE AREA FOR PROPOSED CONSTRUCTION IS TYPICALLY CHARACTERIZED BY HIGH GROUND WATER. INSTALLATION OF UNDERGROUND UTILITIES WILL REQUIRE CONSTRUCTION METHODS DESIGNED SPECIFICALLY FOR EXCAVATION UNDER THESE CONDITIONS. AT A MINIMUM, CONSTRUCTION WILL REQUIRE CONSTANT DEWATERING. DELAYS DUE TO SUBSURFACE CONDITIONS WILL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL TIME AND OR COMPENSATION.

4. AVAILABLE RIGHT-OF-WAY ALONG PROPOSED ROADWAY PIPE ROUTE IS EXTREMELY LIMITED AND MAY NOT AFFORD AMPLE ROOM FOR MATERIAL STOCKPILING ALONG SIDE OF THE PIPELINE TRENCH. HOWEVER, THE CONTRACTOR MAY, AT THEIR DISCRETION, STRING PIPE AND OTHER MATERIALS ON THE OPPOSITE SIDE OF THE ROADWAY, BUT WITHIN R.O.W. LIMITS. PROVIDED CLEANUP AND RESTORATION IS ACCOMPLISHED UNIFORMLY WITH PIPE LAYING OPERATIONS.

5. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COSTS ASSOCIATED WITH THE PROTECTION AND/OR REMOVAL OF ANY TREES REQUIRED FOR THE CONSTRUCTION OF THE PIPELINE WORK.

6. CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING SUITABLE BACKFILL AND BEDDING MATERIAL FOR THE CONSTRUCTION OF THE PROJECT MEETING THE REQUIREMENTS OF THE TECHNICAL SPECIFICATIONS.

7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE GRADING OF STORM WATER SWALES ALONG THE PROJECT ROUTE AFTER THE COMPETITION OF PIPELINE AND STRUCTURE INSTALLATION. THE SWALES SHALL BE CONSTRUCTED TO MATCH THE EXISTING SWALES AFTER RESTORATION.

8. THE EXISTING UTILITY SIZES AND LOCATIONS ARE BASED ON INFORMATION PROVIDED BY THE APPROPRIATE UTILITY OWNER. THE CONTRACTOR IS TO VERIFY THE LOCATION AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION AS REQUIRED BY THIS NOTE.

9. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED HUMBOLDT COUNTY AND LOCAL BUILDING PERMITS PRIOR TO THE START OF CONSTRUCTION AND PROVIDE A COPY OF SAID PERMITS TO THE OWNER AND RESIDENT ENGINEER.

10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL SURVEY WORK, LAYOUT WORK, LOCATIONS OF ALL CONSTRUCTION BASELINES AND LOCATIONS OF ALL TREATMENT EQUIPMENT AND TANKAGE IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.

FORCE MAIN NOTES:

1. PVC FORCE MAINS SHALL BE DR 18 AWWA C-900 PRESSURE RATED AT 150 PSI – GREEN COLOR.

2. USE COMPACT DUCTILE IRON M.J. FITTINGS, PRESSURE RATED AT 350 PSI.

3. SEE DETAIL AND SPECIFICATIONS FOR CUT AND REPLACE PAVED SURFACES.

4. WHEREVER CONCRETE PAVEMENT IS TO BE CUT AND REPLACED, THE REPLACEMENT SHALL EXTEND TO AN EXISTING JOINT, IF THE EXISTING JOINT IS WITHIN THREE FT. OF THE ADJACENT SAW CUT.

5. REMOVAL AND REINSTALLATION OF OBSTACLES SUCH AS MAILBOXES, TRAFFIC SIGNS, STREET MARKERS, ETC. IS NOT A PAY ITEM AND SHALL BE INCLUDED AS AN INCIDENTAL COST INCLUDED IN THE PIPE LINEAR FOOT UNIT PRICE.

6. FOR BITUMINOUS AND CONCRETE SURFACING REPLACEMENT, MEASUREMENT SHALL BE THE LENGTH, MULTIPLIED BY THE WIDTH NOT TO EXCEED 3 FT. FOR PIPELINES UP TO AND INCLUDING 12" DIA. DISPOSAL OF REMOVED MATERIAL WILL BE INCLUDED IN THE REPLACEMENT COST OF THE SURFACING REPLACED FOR BITUMINOUS SURFACING THE REPLACEMENT THICKNESS , UP TO A MAXIMUM TOTAL OF 6 INCHES. FOR CONCRETE REPLACEMENT THICKNESS SHALL BE EQUAL TO THE EXISTING THICKNESS WITH A LIKE KIND OF REINFORCEMENT OR BETTER. REPLACEMENT OF ALL SURFACING SHALL INCLUDE BASE MATERIALS COMPACTED AS DIRECTED.

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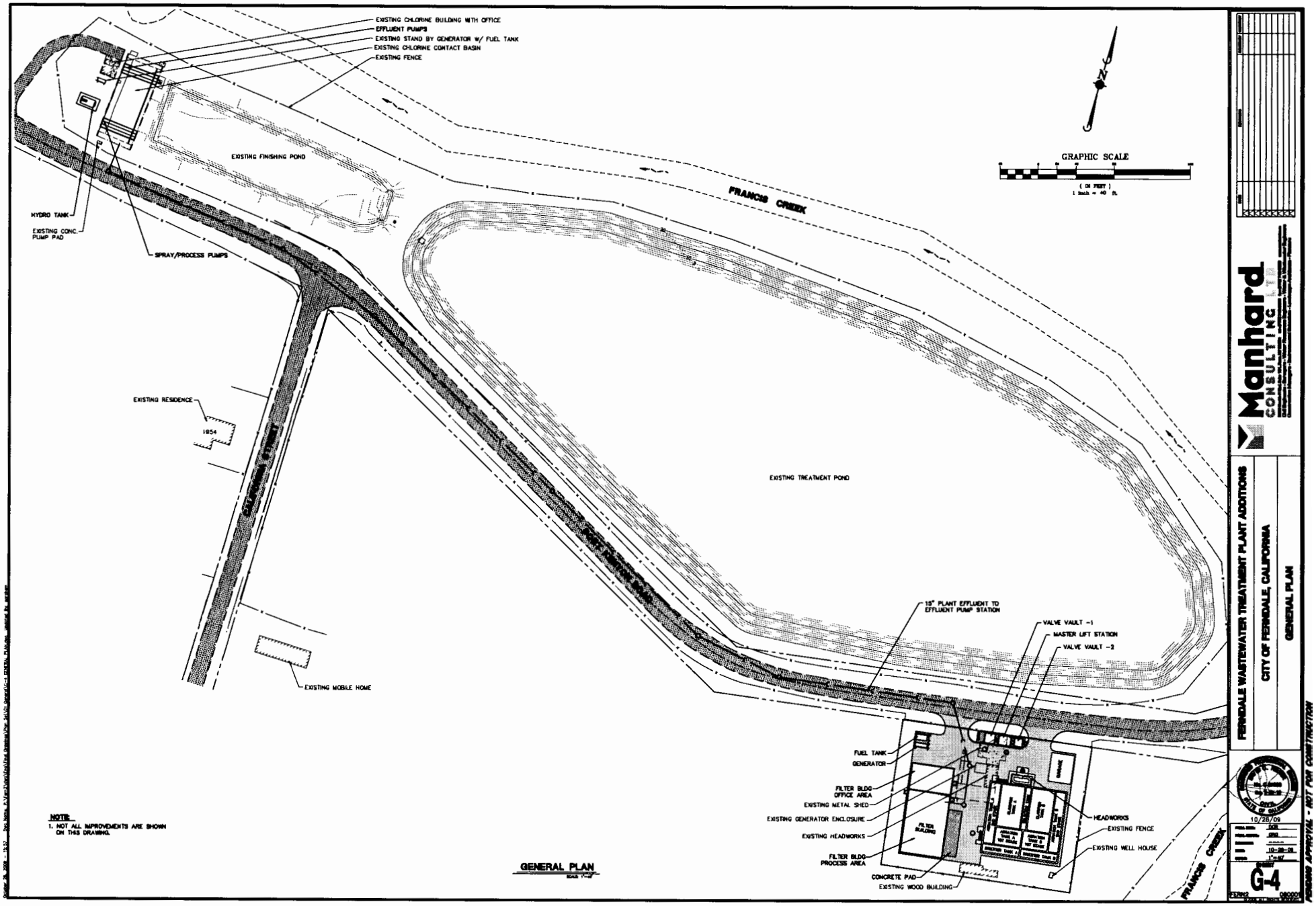
Manhard CONSULTING

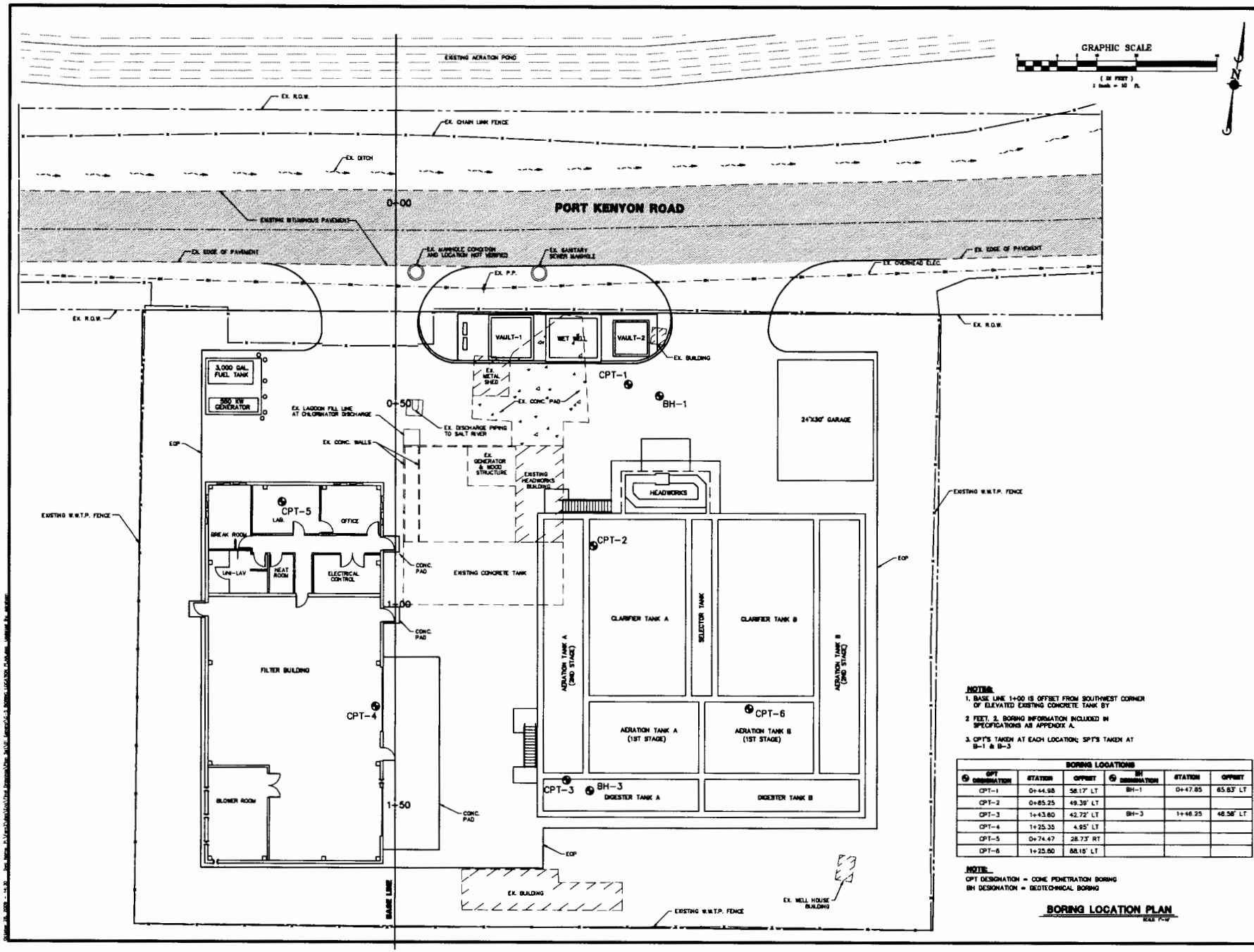
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
GENERAL NOTES

10/28/09

G-3

PERMISSION APPROVAL - NOT FOR CONSTRUCTION


EXISTING CHLORINE BUILDING WITH OFFICE
EFFLUENT PUMPS
EXISTING STAND BY GENERATOR w/ FUEL TANK
EXISTING CHLORINE CONTACT BASIN
EXISTING FENCE
EXISTING FINISHING POND
FRANCIS CREEK
HYDRO TANK
EXISTING CONC. PUMP PAD
SPRAY/PROCESS PUMPS
EXISTING RESIDENCE
1954
EXISTING TREATMENT POND
EXISTING MOBILE HOME
15" PLANT EFFLUENT TO EFFLUENT PUMP STATION
VALVE VAULT -1
MASTER LIFT STATION
VALVE VAULT -2
FUEL TANK
GENERATOR
FILTER BLDG OFFICE AREA
EXISTING METAL SHED
EXISTING GENERATOR ENCLOSURE
EXISTING HEADWORKS
FILTER BLDG PROCESS AREA
CONCRETE PAD
EXISTING WOOD BUILDING
HEADWORKS
EXISTING FENCE
EXISTING WELL HOUSE
FRANCIS CREEK
GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.
N
NOTE
1. NOT ALL IMPROVEMENTS ARE SHOWN ON THIS DRAWING.
GENERAL PLAN
Manhard CONSULTING
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
GENERAL PLAN
10/28/09
10-28-09
1"=40'
G-4
FOR APPROVAL - NOT FOR CONSTRUCTION



NOTES:

1. BASE LINE 1+00 IS OFFSET FROM SOUTHWEST CORNER OF ELEVATED EXISTING CONCRETE TANK BY
2. FEET, 2. BORING INFORMATION INCLUDED IN SPECIFICATIONS AS APPENDIX A.
3. CPT'S TAKEN AT EACH LOCATION; SPT'S TAKEN AT B-1 & B-3

BORING LOCATIONS

CPT DESIGNATION	STATION	OFFSET	BH DESIGNATION	STATION	OFFSET
CPT-1	0+44.98	58.17' LT	BH-1	0+47.85	65.83' LT
CPT-2	0+85.25	49.39' LT			
CPT-3	1+43.60	42.72' LT	BH-3	1+46.25	48.58' LT
CPT-4	1+25.35	4.95' LT			
CPT-5	0+74.47	28.73' RT			
CPT-6	1+25.60	88.16' LT			

NOTE:
CPT DESIGNATION = CONE PENETRATION BORING
BH DESIGNATION = GEOTECHNICAL BORING

BORING LOCATION PLAN

SCALE: 1"=10'

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FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
BORING LOCATION PLAN

10/28/09

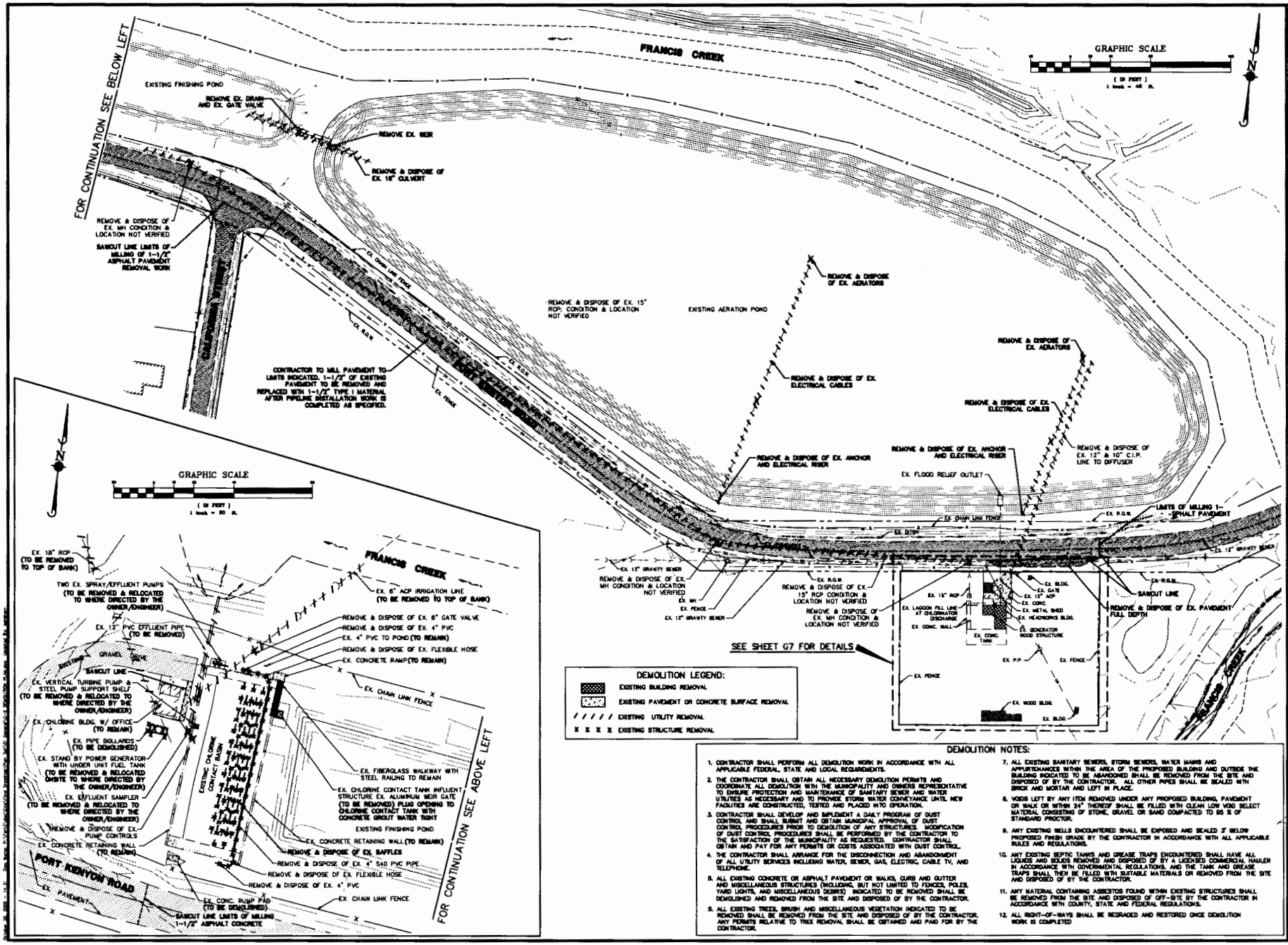
10-28-09

1"=10'

G-5

FOR APPROVAL - NOT FOR CONSTRUCTION

5 of 30



DEMOLITION NOTES:

1. CONTRACTOR SHALL PERFORM ALL DEMOLITION WORK IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY DEMOLITION PERMITS AND COORDINATE ALL DEMOLITION WITH THE MUNICIPALITY AND OWNERS REPRESENTATIVE TO ENSURE PROTECTION AND MAINTENANCE OF SANITARY SEWER AND WATER UTILITIES AS NECESSARY AND TO PROVIDE STORM WATER CONVEYANCE UNTIL NEW FACILITIES ARE CONSTRUCTED, TESTED AND PLACED INTO OPERATION.
3. CONTRACTOR SHALL DEVELOP AND IMPLEMENT A DAILY PROGRAM OF DUST CONTROL AND SHALL SUBMIT AND OBTAIN MUNICIPAL APPROVAL OF DUST CONTROL PROCEDURES PRIOR TO DEMOLITION OF ANY STRUCTURES. MODIFICATION OF DUST CONTROL PROCEDURES SHALL BE PERFORMED BY THE CONTRACTOR TO THE SATISFACTION OF THE MUNICIPALITY AS REQUESTED. CONTRACTOR SHALL OBTAIN AND PAY FOR ANY PERMITS OR COSTS ASSOCIATED WITH DUST CONTROL.
4. THE CONTRACTOR SHALL ARRANGE FOR THE DISCONNECTION AND ABANDONMENT OF ALL UTILITY SERVICES INCLUDING WATER, SEWER, GAS, ELECTRIC, CABLE TV, AND TELEPHONE.
5. ALL EXISTING CONCRETE OR ASPHALT PAVEMENT OR WALKS, CURB AND GUTTER AND MISCELLANEOUS STRUCTURES (INCLUDING, BUT NOT LIMITED TO FENCES, POLES, YARD LIGHTS, AND MISCELLANEOUS DEBRIS) INDICATED TO BE REMOVED SHALL BE DEMOLISHED AND REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
6. ALL EXISTING TREES, BRUSH AND MISCELLANEOUS VEGETATION INDICATED TO BE REMOVED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. ANY PERMITS RELATIVE TO TREE REMOVAL SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.
7. ALL EXISTING SANITARY SEWERS, STORM SEWERS, WATER MAINS AND APPURTENANCES WITHIN THE AREA OF THE PROPOSED BUILDING AND OUTSIDE THE BUILDING INDICATED TO BE ABANDONED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. ALL OTHER PIPES SHALL BE SEALED WITH BRICK AND MORTAR AND LEFT IN PLACE.
8. VOIDS LEFT BY ANY ITEM REMOVED UNDER ANY PROPOSED BUILDING, PAVEMENT OR WALK OR WITHIN 24" THEREOF SHALL BE FILLED WITH CLEAN LOW VOID SELECT MATERIAL CONSISTING OF STONE, GRAVEL OR SAND COMPACTED TO 90 % OF STANDARD PROCTOR.
9. ANY EXISTING WELLS ENCOUNTERED SHALL BE EXPOSED AND SEALED 3' BELOW PROPOSED FINISH GRADE BY THE CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS.
10. ANY EXISTING SEPTIC TANKS AND GREASE TRAPS ENCOUNTERED SHALL HAVE ALL LIQUIDS AND SOLIDS REMOVED AND DISPOSED OF BY A LICENSED COMMERCIAL HAULER IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS, AND THE TANK AND GREASE TRAPS SHALL THEN BE FILLED WITH SUITABLE MATERIALS OR REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
11. ANY MATERIAL CONTAINING ASBESTOS FOUND WITHIN EXISTING STRUCTURES SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH COUNTY, STATE AND FEDERAL REGULATIONS.
12. ALL RIGHT-OF-WAYS SHALL BE REGRADED AND RESTORED ONCE DEMOLITION WORK IS COMPLETED

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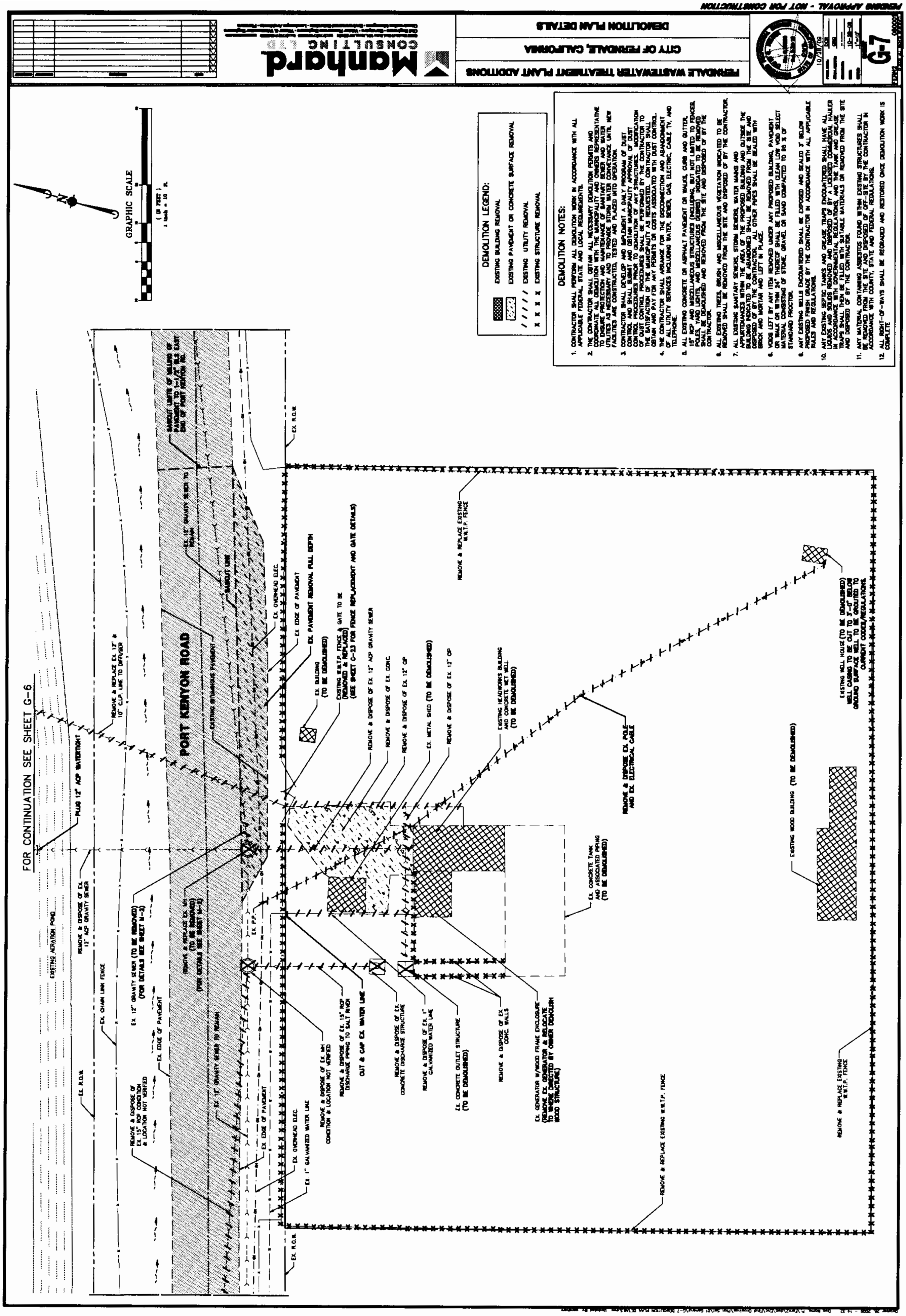
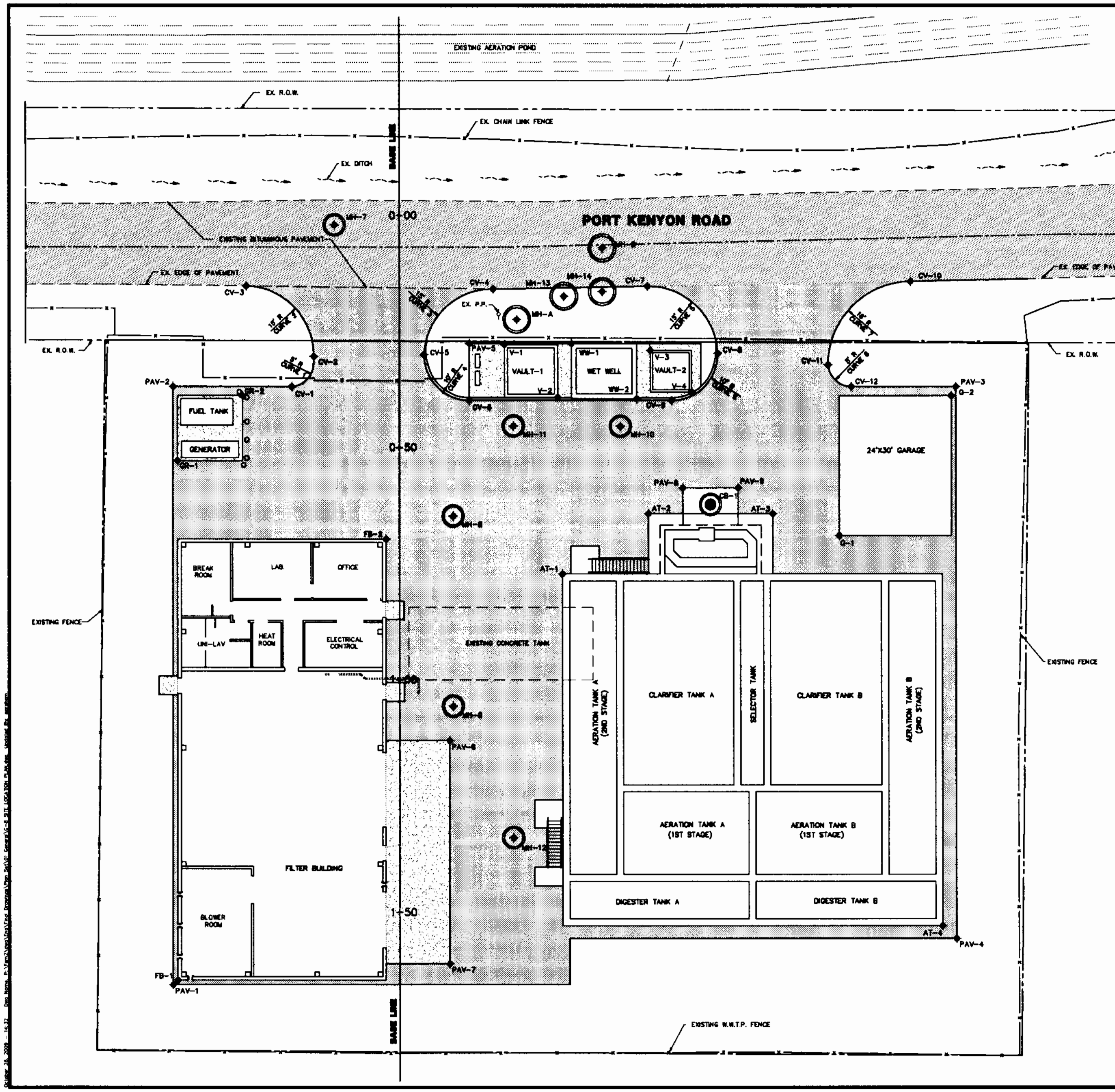
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
DEMOLITION PLAN

10/28/09
10-28-09

G-6

PERMIT APPROVAL - NOT FOR CONSTRUCTION


PENDING APPROVAL - NOT FOR CONSTRUCTION
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
DEMOLITION PLAN DETAILS
10/28/09
G-7
GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.
FOR CONTINUATION SEE SHEET G-6
PORT KENYON ROAD
EXISTING AERATION POND
PLUG 12" ACP WATERTIGHT
REMOVE & REPLACE EXISTING W.W.T.P. FENCE
REMOVE & DISPOSE EX. POLE AND EX. ELECTRICAL CABLE
EXISTING WOOD BUILDING (TO BE DEMOLISHED)
EX. CONCRETE TANK AND ASSOCIATED PIPING (TO BE DEMOLISHED)
DEMOLITION LEGEND:
EXISTING BUILDING REMOVAL
EXISTING PAVEMENT OR CONCRETE SURFACE REMOVAL
EXISTING UTILITY REMOVAL
EXISTING STRUCTURE REMOVAL
DEMOLITION NOTES:
1. CONTRACTOR SHALL PERFORM ALL DEMOLITION WORK IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY DEMOLITION PERMITS AND COORDINATE ALL DEMOLITION WITH THE MUNICIPALITY AND OWNERS REPRESENTATIVE TO ENSURE PROTECTION AND MAINTENANCE OF SANITARY SEWER AND WATER UTILITIES AS NECESSARY AND TO PROVIDE STORM WATER CONVEYANCE UNTIL NEW FACILITIES ARE CONSTRUCTED, TESTED AND PLACED INTO OPERATION.
3. CONTRACTOR SHALL DEVELOP AND IMPLEMENT A DAILY PROGRAM OF DUST CONTROL AND SHALL SUBMIT AND OBTAIN MUNICIPALITY APPROVAL OF DUST CONTROL PROCEDURES PRIOR TO DEMOLITION OF ANY STRUCTURES. MODIFICATION OF DUST CONTROL PROCEDURES SHALL BE PERFORMED BY THE CONTRACTOR TO THE SATISFACTION OF THE MUNICIPALITY AS REQUESTED. CONTRACTOR SHALL OBTAIN AND PAY FOR ANY PERMITS OR COSTS ASSOCIATED WITH DUST CONTROL.
4. THE CONTRACTOR SHALL ARRANGE FOR THE DISCONNECTION AND ABANDONMENT OF ALL UTILITY SERVICES INCLUDING WATER, SEWER, GAS, ELECTRIC, CABLE TV, AND TELEPHONE.
5. ALL EXISTING CONCRETE OR ASPHALT PAVEMENT OR WALKS, CURB AND GUTTER, 15" RCP AND MISCELLANEOUS STRUCTURES (INCLUDING, BUT NOT LIMITED TO FENCES, POLES, YARD LIGHTS, AND MISCELLANEOUS DEBRIS) INDICATED TO BE REMOVED SHALL BE DEMOLISHED AND REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
6. ALL EXISTING TREES, BRUSH AND MISCELLANEOUS VEGETATION INDICATED TO BE REMOVED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
7. ALL EXISTING SANITARY SEWERS, STORM SEWERS, WATER MAINS AND APPURTENANCES WITHIN THE AREA OF THE PROPOSED BUILDING AND OUTSIDE THE BUILDING INDICATED TO BE ABANDONED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. ALL OTHER PIPES SHALL BE SEALED WITH BRICK AND MORTAR AND LEFT IN PLACE.
8. VOIDS LEFT BY ANY ITEM REMOVED UNDER ANY PROPOSED BUILDING, PAVEMENT OR WALK OR WITHIN 24" THEREOF SHALL BE FILLED WITH CLEAN LOW VOID SELECT MATERIAL CONSISTING OF STONE, GRAVEL OR SAND COMPACTED TO 95 % OF STANDARD PROCTOR.
9. ANY EXISTING WELLS ENCOUNTERED SHALL BE EXPOSED AND SEALED 3' BELOW PROPOSED FINISH GRADE BY THE CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS.
10. ANY EXISTING SEPTIC TANKS AND GREASE TRAPS ENCOUNTERED SHALL HAVE ALL LIQUIDS AND SOLIDS REMOVED AND DISPOSED OF BY A LICENSED COMMERCIAL HAULER IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS, AND THE TANK AND GREASE TRAPS SHALL THEN BE FILLED WITH SUITABLE MATERIALS OR REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
11. ANY MATERIAL CONTAINING ASBESTOS FOUND WITHIN EXISTING STRUCTURES SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH COUNTY, STATE AND FEDERAL REGULATIONS.
12. ALL RIGHT-OF-WAYS SHALL BE REGRADED AND RESTORED ONCE DEMOLITION WORK IS COMPLETE



NOTE:
1. BASE LINE 1+00 IS OFFSET FROM SOUTHWEST CORNER OF ELEVATED EXISTING CONCRETE TANK BY 2 FEET.

UNIT LOCATION					
◆ DESIGNATION	STATION	OFFSET	◆ DESIGNATION	STATION	OFFSET
V-1	0+27.80	23.00' LT	FB-1	1+64.64	48.00' RT
V-2	0+39.14	34.34' LT	FB-2	0+69.64	03.00' RT
WW-1	0+27.57	37.34' LT	MH-7	0+02.00	14.18' RT
WW-2	0+39.43	51.32' LT	MH-8	0+64.65	11.77' LT
V-3	0+29.03	54.32' LT	MH-9	1+05.65	11.77' LT
V-4	0+38.03	63.32' LT	MH-10	0+45.38	47.79' LT
G-1	0+68.85	95.37' LT	MH-11	0+45.38	24.99' LT
G-2	0+38.85	119.36' LT	MH-12	1+33.92	24.89' LT
GR-1	0+52.85	48.00' RT	MH-13	0+17.34	35.69' LT
GR-2	0+38.85	34.00' RT	MH-14	0+16.35	43.90' LT
AT-1	0+77.12	35.38' LT	MH-A	0+22.34	25.65' LT
AT-2	0+64.12	53.88' LT	MH-8	0+06.92	43.91' LT
AT-3	0+64.12	80.88' LT	CB-1	0+82.17	67.38' LT
AT-4	1+52.67	117.38' LT			

PAVEMENT ALIGNMENT LOCATION			
◆ DESIGNATION	STATION	OFFSET	COMMENT
PAV-1	1+65.84	49.00' RT	S.W. CORNER OF PAVEMENT
PAV-2	0+38.85	49.00' RT	N.W. CORNER OF PAVEMENT
CV-1	0+36.85	23.40' RT	END POINT OF CURVE 1
CV-2	0+30.33	18.65' RT	END POINT OF CURVE 1&2
CV-3	0+15.15	33.20' RT	END POINT OF CURVE 2
CV-4	0+15.79	20.55' LT	END POINT OF CURVE 3
CV-5	0+29.94	05.38' LT	END POINT OF CURVE 3&4
CV-6	0+39.85	15.38' LT	END POINT OF CURVE 4
CV-7	0+15.21	53.70' LT	END POINT OF CURVE 5
CV-8	0+29.66	68.98' LT	END POINT OF CURVE 5&6
CV-9	0+39.85	58.98' LT	END POINT OF CURVE 6
CV-10	0+14.13	110.66' LT	END POINT OF CURVE 7
CV-11	0+32.12	93.00' LT	END POINT OF CURVE 7&8
CV-12	0+36.85	97.98' LT	END POINT OF CURVE 8
PAV-3	0+36.85	120.37' LT	N.E. CORNER OF PAVEMENT
PAV-4	1+55.64	120.37' LT	S.E. CORNER OF PAVEMENT
PAV-5	0+27.58	15.38' LT	N.W. CORNER OF CONC.
PAV-6	1+13.12	11.00' LT	N.E. CORNER OF CONC. PAD
PAV-7	1+61.12	11.00' LT	S.E. CORNER OF CONC. PAD
PAV-8	0+58.62	61.38' LT	N.W. CORNER OF CONC. PAD
PAV-9	0+58.62	73.38' LT	N.E. CORNER OF CONC. PAD

SITE LOCATION & ROADWAY GEOMETRY PLAN

SCALE: 1"=10'

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FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

CITY OF FERNDALE, CALIFORNIA

SITE LOCATION PLAN

10/28/09

G-8

PENDING APPROVAL - NOT FOR CONSTRUCTION

PENDING APPROVAL-NOT FOR CONSTRUCTION

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

CITY OF FERNDALE, CALIFORNIA

HOLDING POND SITE PLAN

Manhard CONSULTING LTD

SHEET 17 OF 55

GRAPHIC SCALE

N

TOP OF BANK

TOE OF SLOPE EL=6.83

HOLDING POND

SLOPE TO INLET

TOP OF PAD EL=14.50 SEE DETAIL SHEET 19

ONEWAY LOW STRUCTURE SEE DETAIL SHEET 18

(E) FINISHING POND

NOTES:

1.- WETLANDS PLANTS SHALL BE PLANTED IN WETLANDS AREAS 1 AND 2.

2.- DREDGING MATERIAL FROM STORMWATER BASIN SHALL BE SPREAD EVENLY THROUGHOUT WETLANDS BASIN.

3.- STORMWATER BASIN SHALL BE DREDGED WITH CONTENTS GOING TO THE NEW WETLANDS AREA.

SECTION A-A
H = 1" = 40'; V 1" = 10'

OVERFLOW STRUCTURE
SCALE 1" = 20'

SECTION
SCALE 1" = 20'

SECTION
SCALE 1" = 20'

PENDING APPROVAL-NOT FOR CONSTRUCTION

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

CITY OF FERNDALE, CALIFORNIA

HOLDING POND DETAILS

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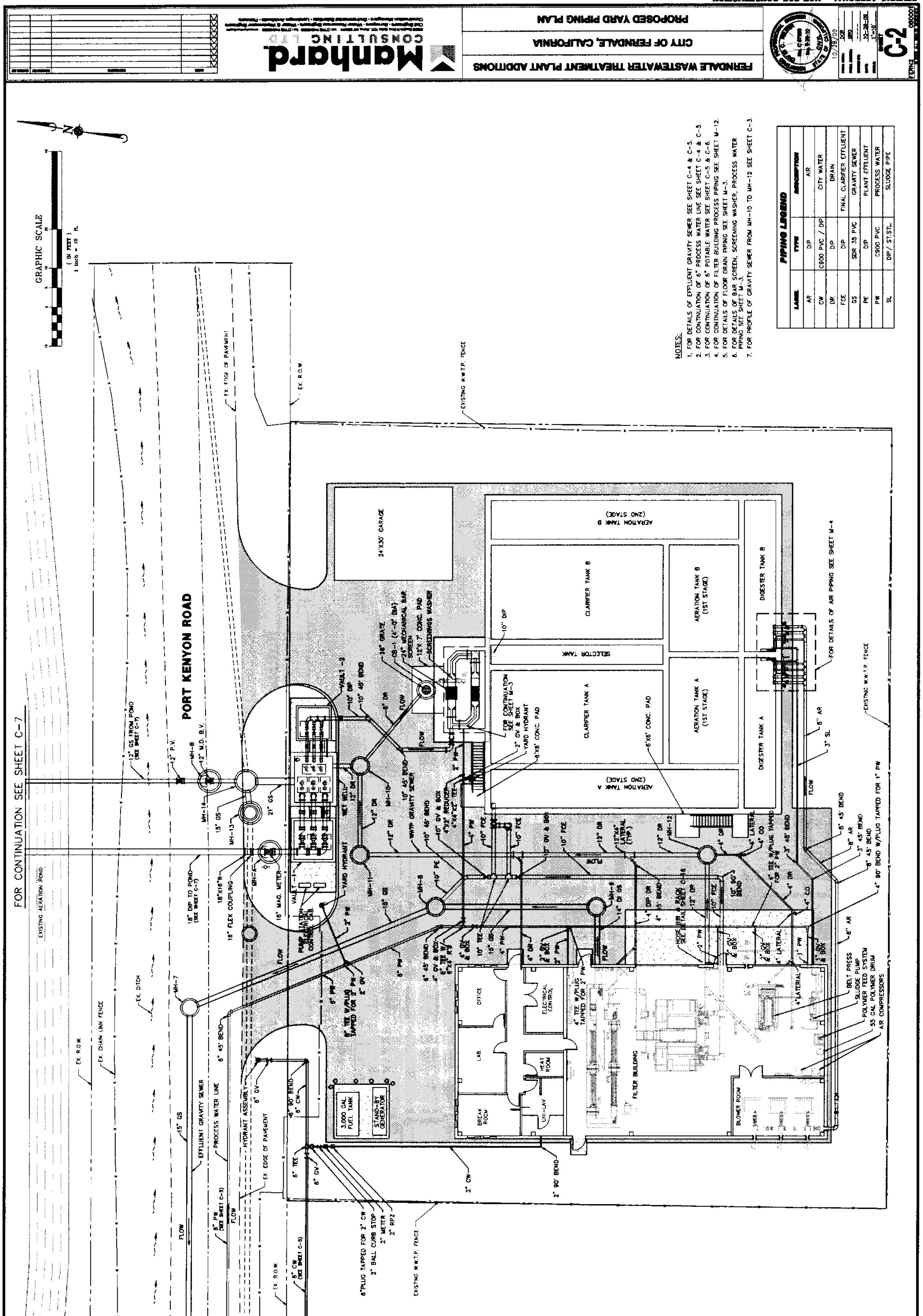
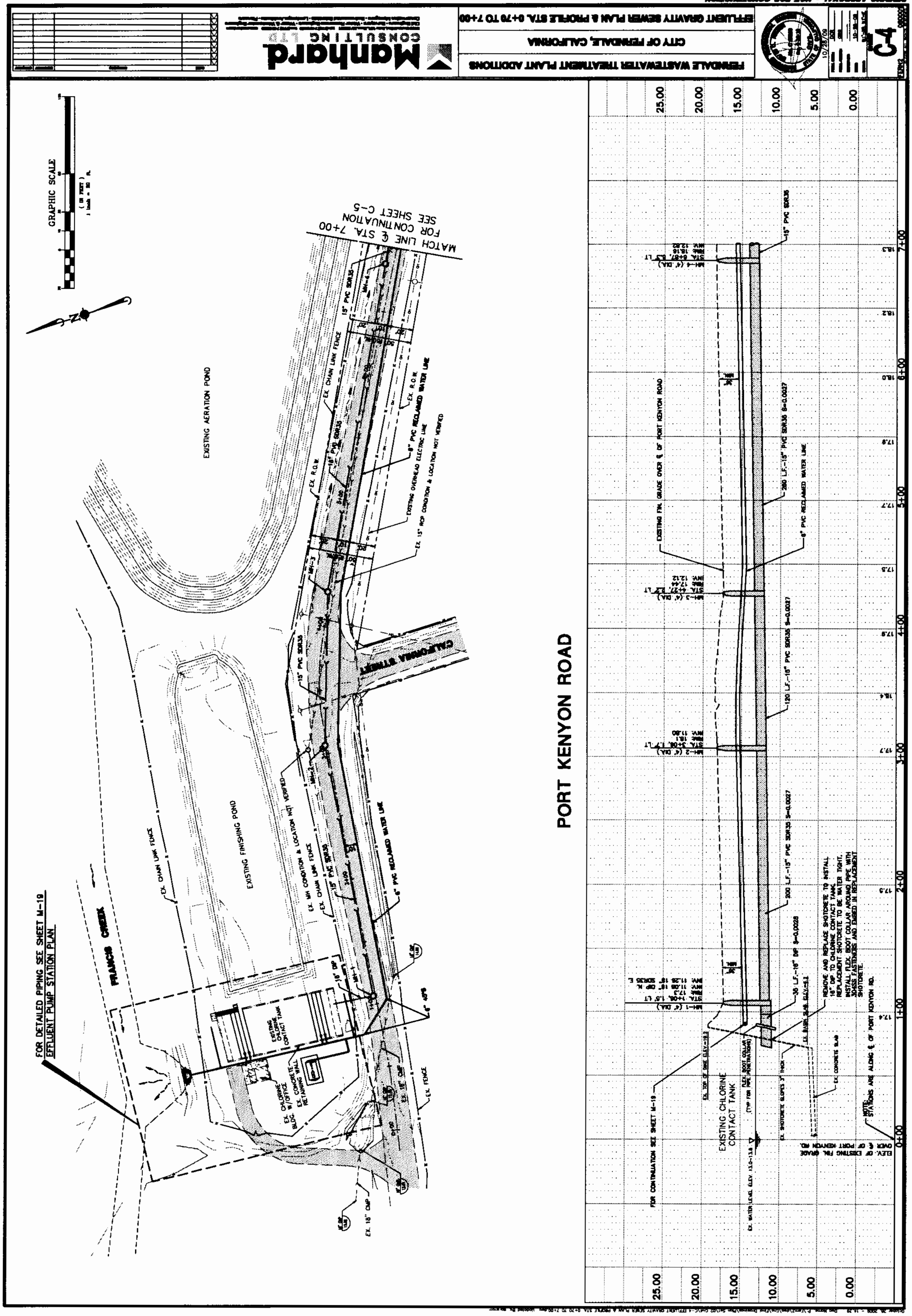
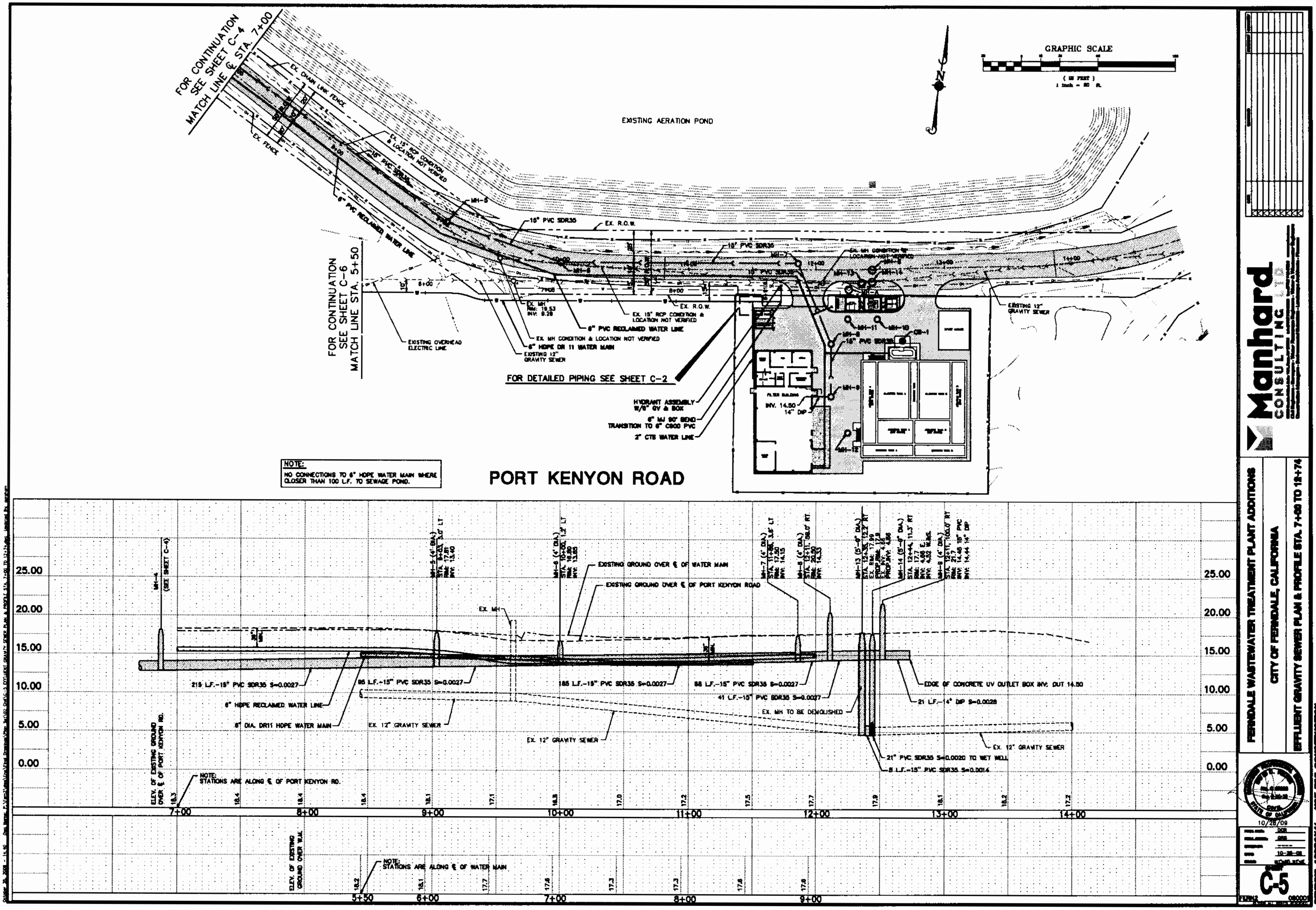
SHEET 19 OF 55

INLET DETAIL
N.T.S.

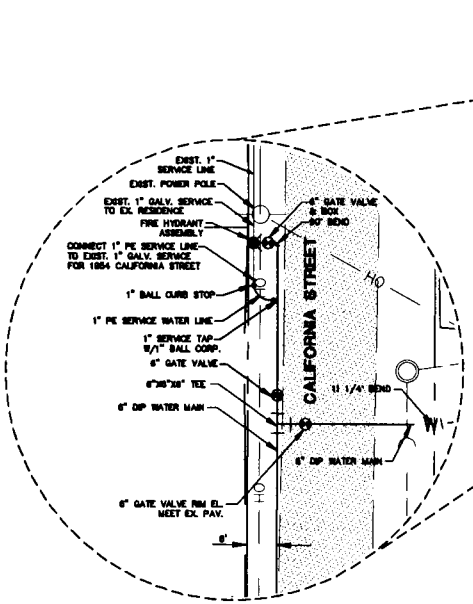
PIPE PENETRATION DETAIL
N.T.S.


PENDING APPROVAL - NOT FOR CONSTRUCTION
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
PROPOSED YARD PIPING PLAN
Manhard CONSULTING LTD
C-2
FOR CONTINUATION SEE SHEET C-7
PORT KENYON ROAD
GRAPHIC SCALE
NOTES:
1. FOR DETAILS OF EFFLUENT GRAVITY SEWER SEE SHEET C-4 & C-5.
2. FOR CONTINUATION OF 6" PROCESS WATER LINE SEE SHEET C-4 & C-5.
3. FOR CONTINUATION OF 6" POTABLE WATER SEE SHEET C-5 & C-6.
4. FOR CONTINUATION OF FILTER BUILDING PROCESS PIPING SEE SHEET M-12.
5. FOR DETAILS OF FLOOR DRAIN PIPING SEE SHEET M-3.
6. FOR DETAILS OF BAR SCREEN, SCREENING WASHER, PROCESS WATER PIPING SEE SHEET M-3.
7. FOR PROFILE OF GRAVITY SEWER FROM MH-10 TO MH-12 SEE SHEET C-3.
PIPING LEGEND
LABEL TYPE DESCRIPTION
AR DIP AIR
CW C900 PVC / DIP CITY WATER
DR DIP DRAIN
FCE DIP FINAL CLARIFIER EFFLUENT
GS SDR 35 PVC GRAVITY SEWER
PE DIP PLANT EFFLUENT
PW C900 PVC PROCESS WATER
SL DIP/ ST.STL. SLUDGE PIPE
AERATION TANK B (2ND STAGE)
24'X30' GARAGE
CLARIFIER TANK B
AERATION TANK B (1ST STAGE)
DIGESTER TANK B
SELECTOR TANK
CLARIFIER TANK A
AERATION TANK A (1ST STAGE)
DIGESTER TANK A
AERATION TANK A (2ND STAGE)
OFFICE
LAB.
BREAK ROOM
ELECTRICAL CONTROL
HEAT ROOM
FILTER BUILDING
BLOWER ROOM
3,000 GAL. FUEL TANK
STAND-BY GENERATOR

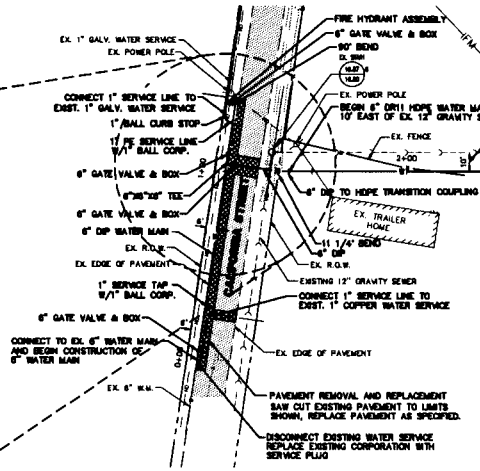

PENDING APPROVAL - NOT FOR CONSTRUCTION
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
EFFLUENT GRAVITY SEWER PLAN & PROFILE STA. 0+70 TO 7+00
C-4
GRAPHIC SCALE
MATCH LINE ℄ STA. 7+00
FOR CONTINUATION
SEE SHEET C-5
EXISTING AERATION POND
EXISTING FINISHING POND
FRANCIS CREEK
CALIFORNIA STREET
FOR DETAILED PIPING SEE SHEET M-19
EFFLUENT PUMP STATION PLAN
PORT KENYON ROAD
EXISTING CHLORINE CONTACT TANK
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
0.00
5.00
10.00
15.00
20.00
25.00

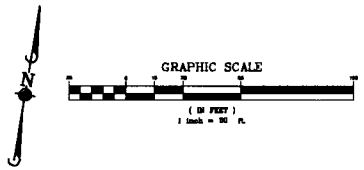


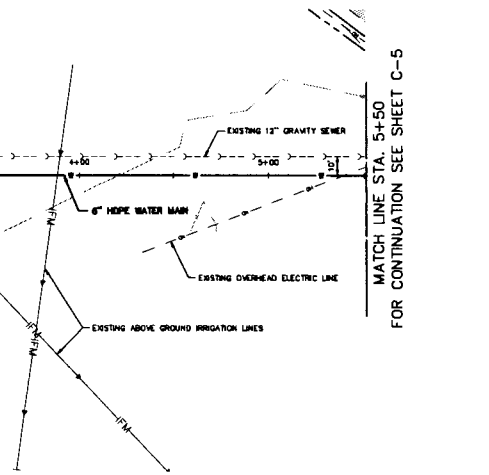
FOR CONTINUATION SEE SHEET C-4
MATCH LINE ℄ STA. 7+00
FOR CONTINUATION SEE SHEET C-6
MATCH LINE STA. 5+50
EXISTING AERATION POND
GRAPHIC SCALE
PORT KENYON ROAD
FOR DETAILED PIPING SEE SHEET C-2
NOTE:
NO CONNECTIONS TO 6" HDPE WATER MAIN WHERE CLOSER THAN 100 L.F. TO SEWAGE POND.
EX. CHAIN LINK FENCE
EX. FENCE
EX. R.O.W.
15" PVC SDR35
6" PVC RECLAIMED WATER LINE
EXISTING OVERHEAD ELECTRIC LINE
EXISTING 12" GRAVITY SEWER
6" HDPE DR 11 WATER MAIN
EX. MH CONDITION & LOCATION NOT VERIFIED
EX. 15" RCP CONDITION & LOCATION NOT VERIFIED
HYDRANT ASSEMBLY W/6" GV & BOX
6" MJ 90° BEND
TRANSITION TO 6" C900 PVC
2" CTS WATER LINE
INV. 14.50
14" DIP
EXISTING GROUND OVER ℄ OF WATER MAIN
EXISTING GROUND OVER ℄ OF PORT KENYON ROAD
215 L.F.-15" PVC SDR35 S=0.0027
85 L.F.-15" PVC SDR35 S=0.0027
185 L.F.-15" PVC SDR35 S=0.0027
88 L.F.-15" PVC SDR35 S=0.0027
41 L.F.-15" PVC SDR35 S=0.0027
6" HDPE RECLAIMED WATER LINE
6" DIA. DR11 HDPE WATER MAIN
EX. 12" GRAVITY SEWER
EX. MH TO BE DEMOLISHED
EDGE OF CONCRETE UV OUTLET BOX INV. OUT 14.50
21 L.F.-14" DIP S=0.0028
21" PVC SDR35 S=0.0020 TO WET WELL
8 L.F.-15" PVC SDR35 S=0.0014
NOTE: STATIONS ARE ALONG ℄ OF PORT KENYON RD.
NOTE: STATIONS ARE ALONG ℄ OF WATER MAIN
ELEV. OF EXISTING GROUND OVER ℄ OF PORT KENYON RD.
ELEV. OF EXISTING GROUND OVER W.M.
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
EFFLUENT GRAVITY SEWER PLAN & PROFILE STA. 7+00 TO 12+74
10/28/09
C-5
PENDING APPROVAL - NOT FOR CONSTRUCTION



HOUSE 1954 CALIFORNIA STREET
SERVICE CONNECTION DETAIL
SCALE: 1"=10'

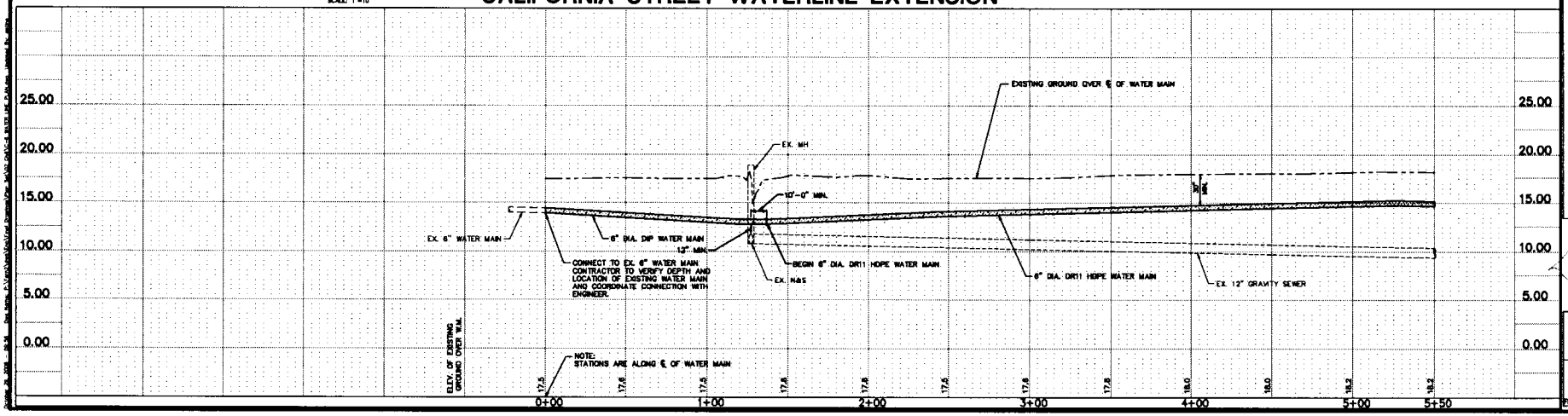






NOTES:
1. CONTRACTOR TO SAW CUT PAVEMENT WHERE INDICATED ON PLAN VIEW.
2. ROADWAY REPAIR SHALL BE IN ACCORDANCE WITH HUMBOLDT COUNTY REQUIREMENTS.
3. SEE SHEET C-21 FOR DETAILS OF PAVEMENT REPAIR AND TRENCH PATCH REPAIR.
4. LOCATION OF EXISTING UTILITIES AND GROUND SURFACE ELEVATIONS PER SPENCER ENGINEERING DATED 2000 AND FERNDALE SURVEY COMPANY DATED 2009.

CALIFORNIA STREET WATERLINE EXTENSION



Manhard CONSULTING

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
WATER LINE PLAN & PROFILE STA 0+00 TO 5+50

10/28/09

C-6

PENDING APPROVAL - NOT FOR CONSTRUCTION

PERMIT APPROVAL - NOT FOR CONSTRUCTION

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

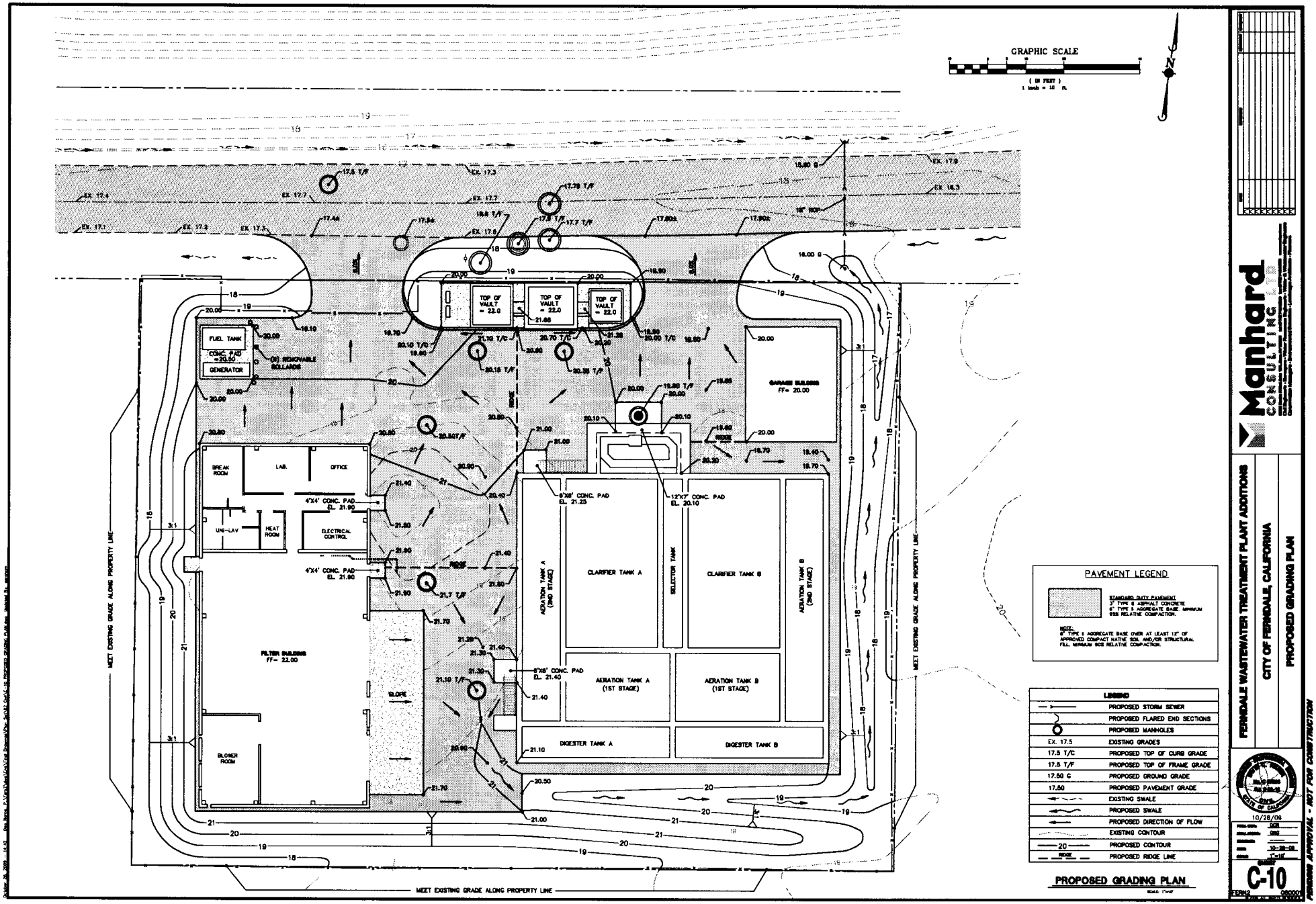
CITY OF FERNDALE, CALIFORNIA

POND FEED & WITHDRAWAL PLAN & PROFILE

Manhard CONSULTING

C-7

PERMIT APPROVAL - NOT FOR CONSTRUCTION
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
EXISTING GRADING PLAN
Manhard CONSULTING
C-9
EXISTING GRADING PLAN
GRAPHIC SCALE
PORT KENYON ROAD
EX. R.O.W.
EX. CHAIN LINK FENCE
EX. EDGE OF PAVEMENT
EX. DITCH
EX. OVERHEAD ELEC.
EX. BUILDING
EX. CONC. PAD
EX. METAL SHED
EXISTING FENCE & GATE
EXISTING HEADWORKS BUILDING AND CONCRETE WET WELL
EX. POWER POLE
EX. CONCRETE TANK AND ASSOCIATED PIPING
EXISTING WOOD BUILDING
EXISTING WELL HOUSE
EXISTING FENCE
EX. GENERATOR W/WOOD ENCLOSURE
EX. CONCRETE DISCHARGE STRUCTURE
EX. CONCRETE OUTLET STRUCTURE
EX. CONC. RETAINING WALLS
EX. MH CONDITION & LOCATION NOT VERIFIED
EXISTING ASPHALT PAVING



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FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS

CITY OF FERNDALE, CALIFORNIA

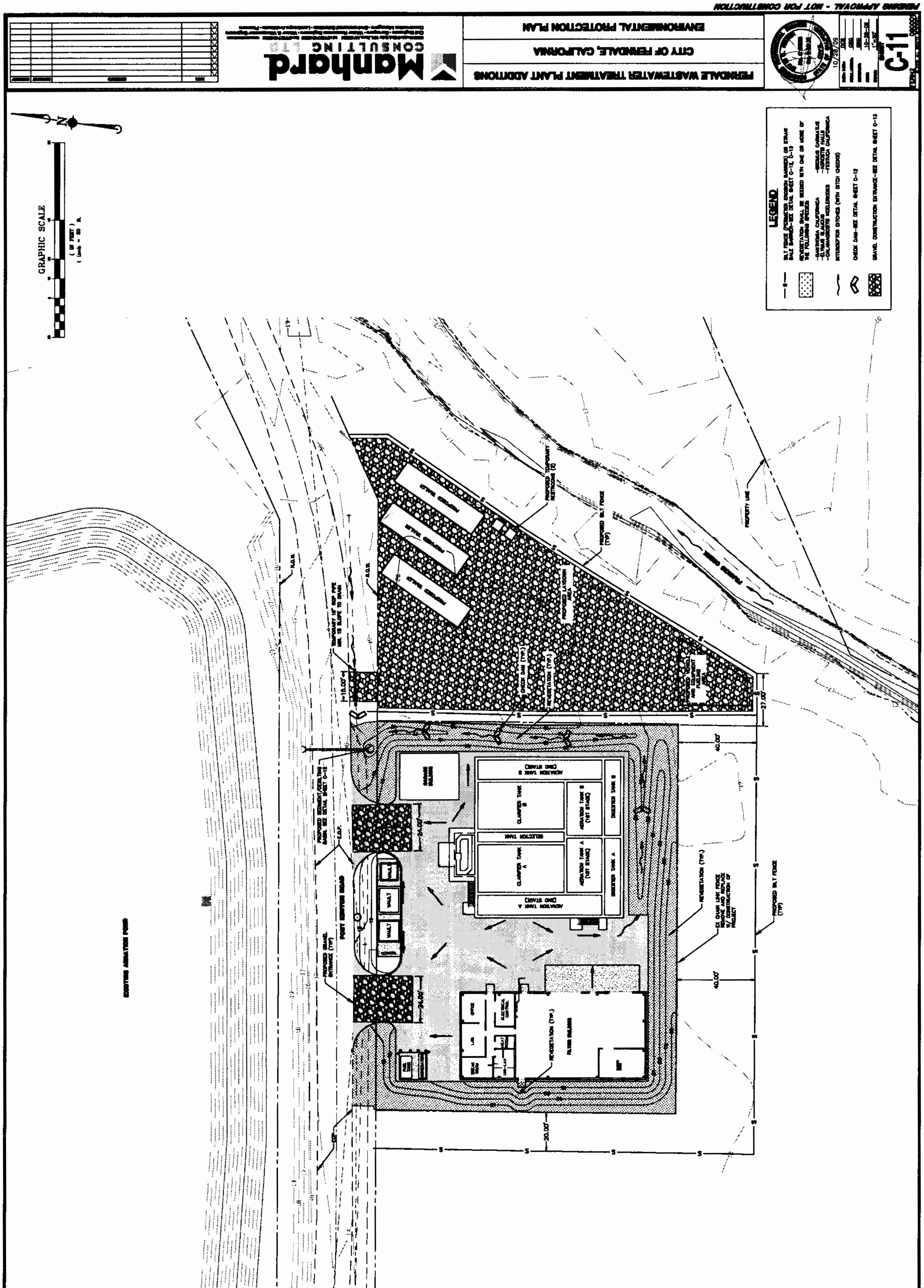
PROPOSED GRADING PLAN

10/28/09

C-10

FERN2

PENDING APPROVAL - NOT FOR CONSTRUCTION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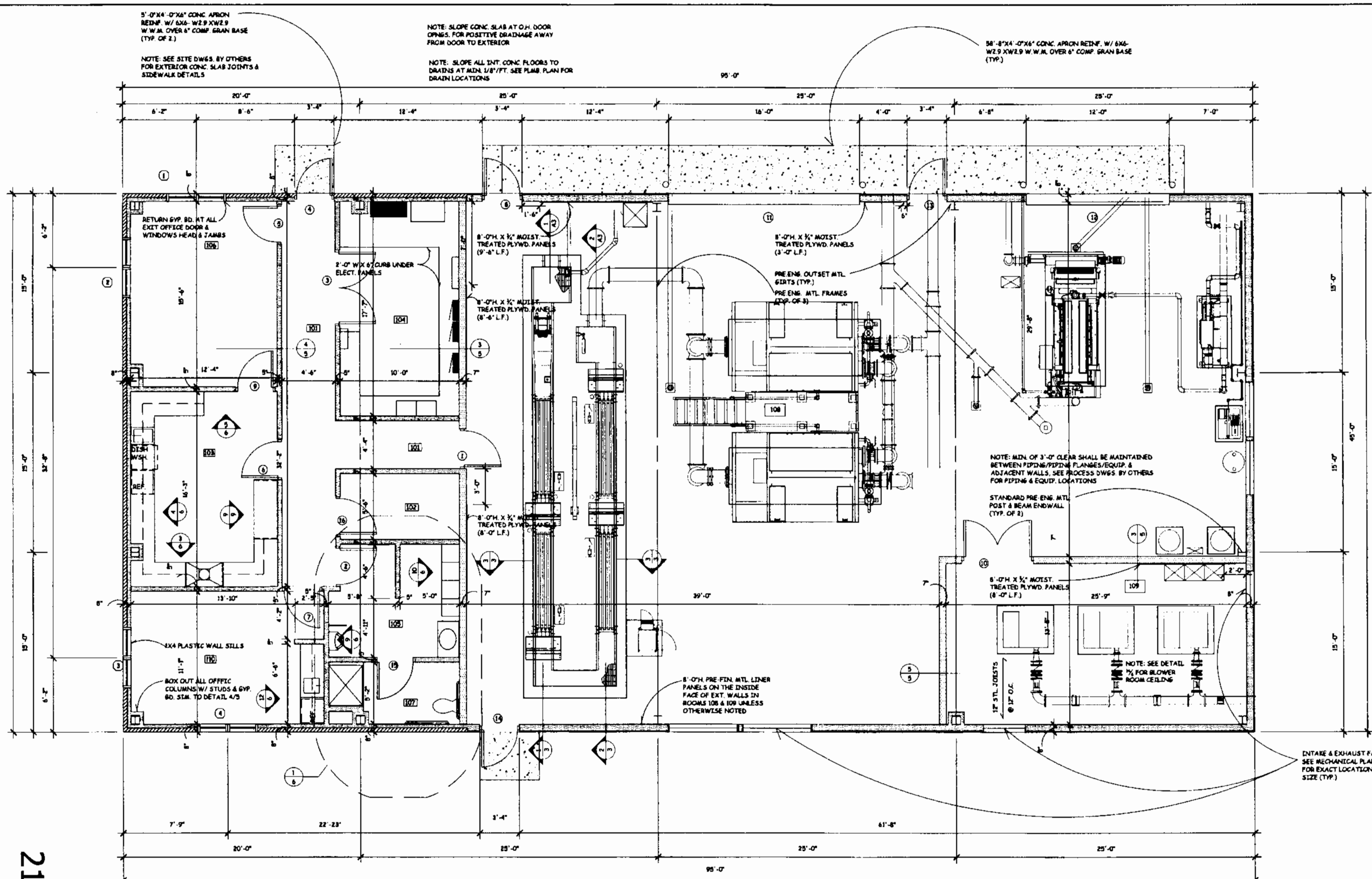
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
ENVIRONMENTAL PROTECTION PLAN
C-11
GRAPHIC SCALE
LEGEND

FERNDALE WASTEWATER TREATMENT PLANT
CITY OF FERNDALE, CALIFORNIA
AERATION/CLARIFIER/DIGESTER PLAN VIEW
SHEET
S1
Manhard CONSULTING LTD
LICENSED ARCHITECT
JAMES A. LIGHT
No. C23820
EXP: 11-30-09
STATE OF CALIFORNIA
FLOOR PLAN
NORTH
SEE DRAWINGS BY OTHERS FOR EQUIP.
CLARIFIER TANK B
AERATION TANK B (1ST STAGE)
DIGESTER TANK B
AERATION TANK B (2ND STAGE)
SELECTOR TANK
CLARIFIER TANK A
AERATION TANK A (1ST STAGE)
DIGESTER TANK A
AERATION TANK A (2ND STAGE)
86'-6"
76'-0"
10'-6"
13'-0"
82'-0"
39'-0"
36'-6"
27'-3"
22'-3"
20'-9"
18'-3"
24'-0"
10'-0"
5'-0"
1'-0"
63'-3"
8'-9"
4'-0"



FLOOR PLAN

Scale 1/4"=1'-0"

North

BUILDING & CODE DATA

Project Location:	City of Ferndale Port Kenyon Road Ferndale, California
Applicable Local Building Code:	2007 California Building Code Title 24 Part 2 Volume 1 & 2
Construction Type:	Type II B (Filter Building & Garage) Non- Combustible/Unprotected
Use Group:	"U" Utility-Miscellaneous

SHEET INDEX

STATEMENT OF COMPLIANCE

I have prepared, or caused to be prepared under my direct supervision, the attached plans and specifications and state that, to the best of my knowledge and belief and to the extent of my contractual obligations, they are in compliance with the Environmental Barriers Act (III. Rev. Stat. 1985, ch. III ½ pars. 3711 et seq. as amended)

Paul R. Glenn Architects Inc.
In Association with
James A. Lichty Architects.

Signed by: [signature]
Date: 10.28.09
Registration No. C23820
License Expires: 11.30.09

LICENSED ARCHITECT JAMES A. LICHTY No. C23820 EXP. 11.30.09 STATE OF CALIFORNIA

DATE	REVISIONS	DRAWN BY	CHECK BY
[illegible]	PRELIMINARY	E.D.	P.G.
[illegible]	50 % DRAWINGS	E.D.	P.G.
[illegible]	90 % DRAWINGS	E.D.	P.G.
[illegible]	Revised Per Owner AS	E.D.	P.G.
[illegible]	Revised Per Owner AS	E.D.	P.G.
[illegible]	Revised Per Owner AS	E.D.	P.G.
[illegible]	Revised Per Owner AS	E.D.	P.G.
[illegible]	For Construction	E.D.	P.D.

Paul R. Glenn Architects Inc.
14618 Hebron Rd. Harvard, IL 60033
P:815-382-3737 FAX:815-648-4450
PAULGLENNARCH@COMCAST.NET
PGA PROJECT NO.: 08-104

Manhard CONSULTING LTD
Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

FERNDALE WASTEWATER TREATMENT PLANT

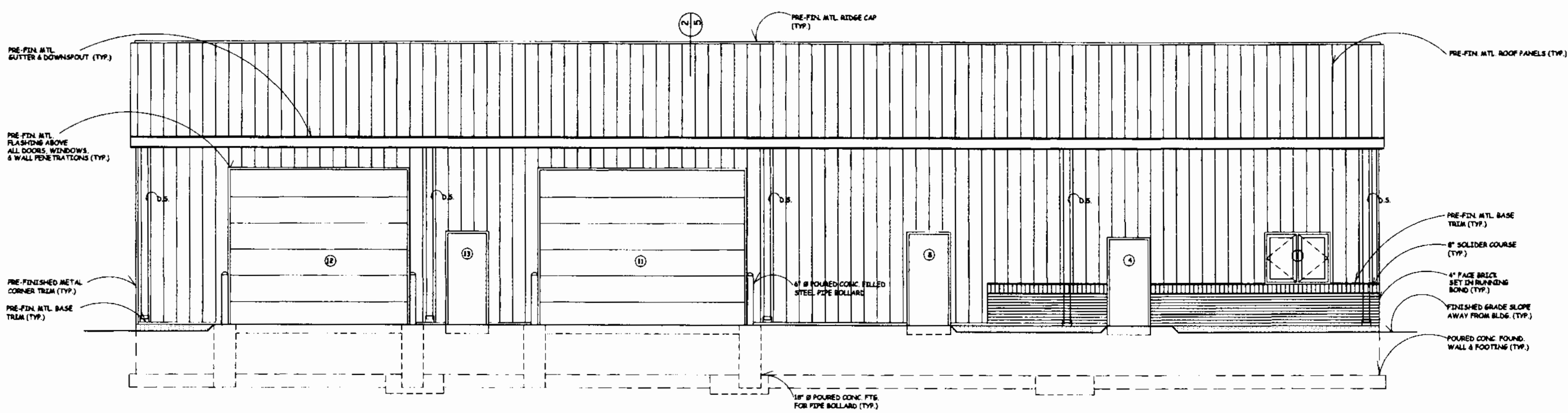
CITY OF FERNDALE, CALIFORINA

FILTER BUILDING (FLOOR PLAN)

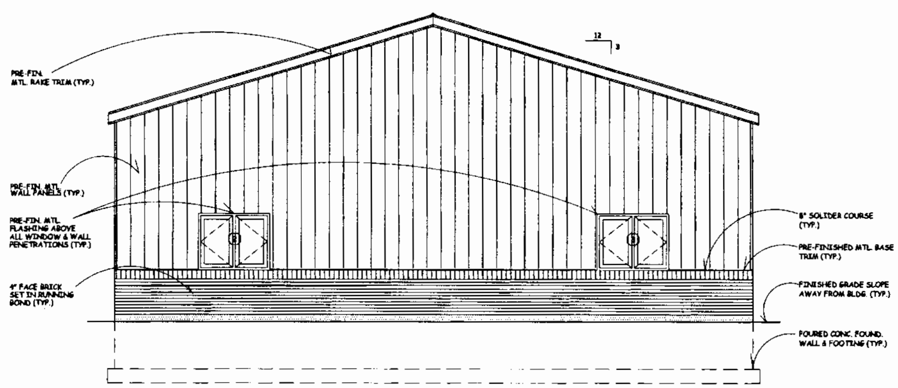
PROJ. MGR.:	P.G.
PROJ. ASSOC.:	--
DRAWN BY:	E.D.
CHECKED BY:	P.G.
DATE:	4-3-08
SCALE:	NA

SHEET A1

08-104 B



EAST ELEVATION
Scale 1/4"=1'-0"



NORTH ELEVATION
Scale 1/4"=1'-0"

ABBREVIATIONS

@	-AT	L	-LONG
#	-NUMBER	LAV.	-LAVATORY
A.B.	-ANCHOR BOLT	LBR	-LUMBER
A.F.F.	-ABOVE FINISH FLOOR	LBS.	-POUNDS
ARCH.	-ARCHITECTURAL	MAX.	-MAXIMUM
BLDG.	-BUILDING	MTL.	-METAL
BM.	-BEAM	MIN.	-MINIMUM
BRG.	-BEARING	M.O.	-MASONRY OPENING
BLK.	-BLOCK	MECH.	-MECHANICAL
C/C	-CENTER TO CENTER	MOIST.	-MOISTURE
CLG.	-CEILING	N.I.C.	-NOT IN CONTRACT
C.J.	-CONTROL JOINT	N/A	-NOT APPLICABLE
COL.	-COLUMN	N.T.S.	-NOT TO SCALE
CONC.	-CONCRETE	O.C.E.W.	-ON CENTER EACH WAY
CONT.	-CONTINUOUS	O.C.	-ON CENTER
C/L	-CENTER LINE	O.H. DR.	-OVERHEAD DOOR
DBL.	-DOUBLE	OPNG.	-OPENING
DIA.	-DIAMETER	PSI	-POUNDS PER SQ. IN.
DWG.	-DRAWING	PSF	-POUNDS PER SQ. FT
EA.	-EACH	PLMB.	-PLUMBING
ELECT	-ELECTRICAL	PRE-ENG.	-PRE-ENGINEERED
EQ.	-EQUAL	PLYWD.	-PLYWOOD
EXIST	-EXISTING	PL.	-PLATE
EXT.	-EXTERIOR	REQ.	-REQUIRED
F.D.	-FLOOR DRAIN	REINF.	-REINFORCED/REINFORCING
FLR.	-FLOOR	R.O.	-ROUGH OPENING
FOUND.	-FOUNDATION	RESIST.	-RESISTANT
FT.	-FOOT/FEET	RETARD.	-RETARDANT
FIBRGLS.	-FIBERGLASS	S.F.	-SQUARE FOOT/FEET
FTG.	-FOOTING	STD.	-STANDARD
GYP. BD.	-GYPSUM BOARD	SQ.	-SQUARE
G.F.I.	-GROUND FAULT INTERRUPT	STL.	-STEEL
IN.	-INCH/INCHES	STYRO.	-STYROFOAM
INSUL.	-INSULATION	SH.	-SHELF
INT.	-INTERIOR	T & B	-TOP & BOTTOM
JT.	-JOINT	T.C.	-TOP OF CONCRETE
		TYP.	-TYPICAL
		WD.	-WOOD
		W.W.M.	-WELDED WIRE MESH
		W/	-WITH

LICENSED ARCHITECT
JAMES A. LICHTY
No. C23820
EXP. 11.30.09
STATE OF CALIFORNIA

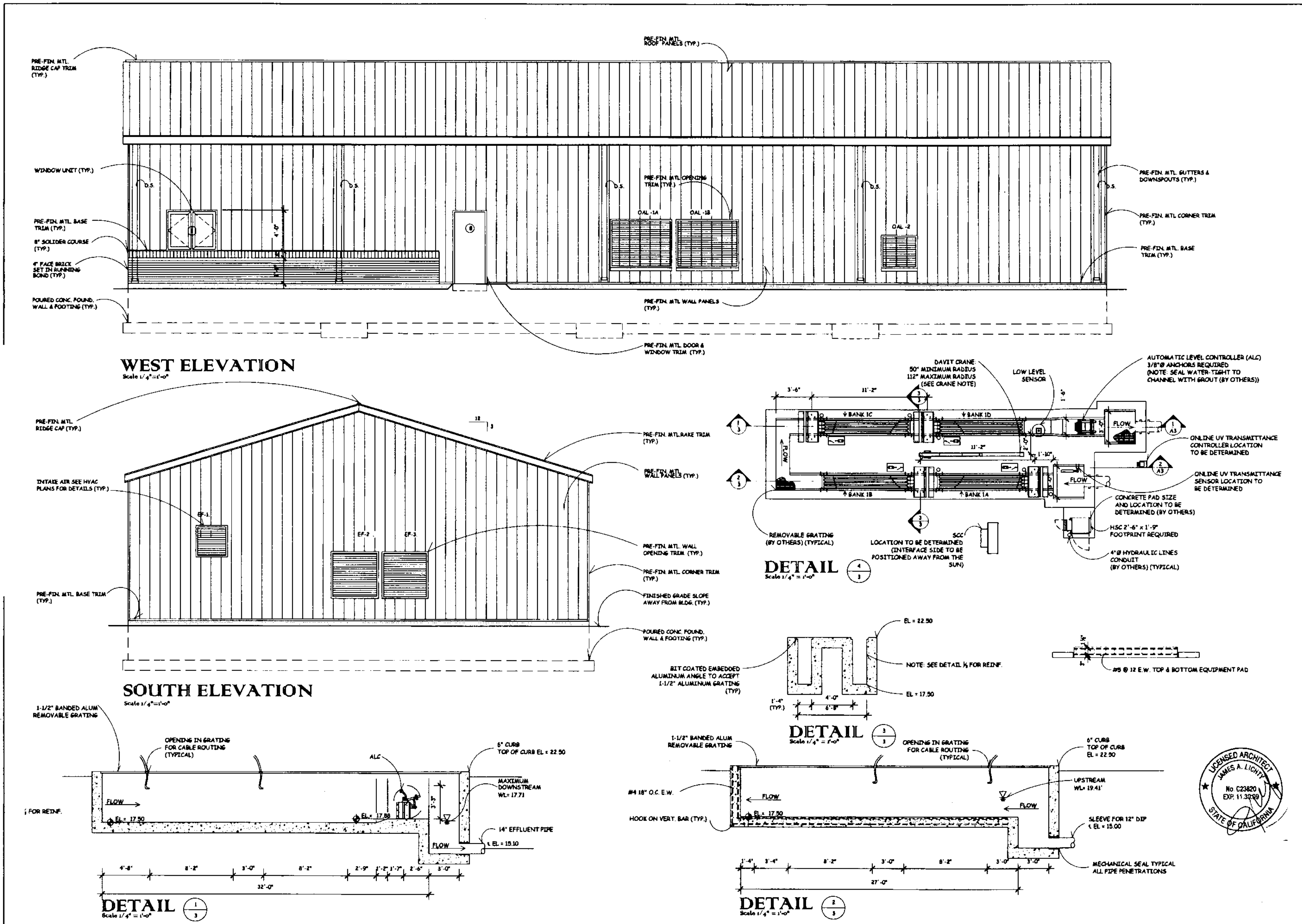
Manhard CONSULTING LTD

Paul R. Glass Architects Inc.
PRA PROJECT NO.: 08-104

FERNDALE WASTEWATER TREATMENT PLANT
CITY OF FERNDALE, CALIFORINA
FILTER BUILDING (ELEVATIONS & ABBRV.)

SHEET A2

JSDCN 070426



PRE-FIN. MTL. ROOF PANELS (TYP.)
PRE-FIN. MTL. RIDGE CAP TRIM (TYP.)
WINDOW UNIT (TYP.)
PRE-FIN. MTL. BASE TRIM (TYP.)
8" SOLIDER COURSE (TYP.)
4" FACE BRICK SET IN RUNNING BOND (TYP.)
POURED CONC. FOUND. WALL & FOOTING (TYP.)
PRE-FIN. MTL. OPENING TRIM (TYP.)
OAL-1A
OAL-1B
OAL-2
PRE-FIN. MTL. GUTTERS & DOWNSPOUTS (TYP.)
PRE-FIN. MTL. CORNER TRIM (TYP.)
PRE-FIN. MTL. BASE TRIM (TYP.)
PRE-FIN. MTL. WALL PANELS (TYP.)
PRE-FIN. MTL. DOOR & WINDOW TRIM (TYP.)
WEST ELEVATION
Scale 1/4"=1'-0"
PRE-FIN. MTL. RIDGE CAP (TYP.)
INTAKE AIR SEE HVAC PLANS FOR DETAILS (TYP.)
EF-1
EF-2
EF-3
PRE-FIN. MTL. BASE TRIM (TYP.)
PRE-FIN. MTL. RAKE TRIM (TYP.)
PRE-FIN. MTL. WALL PANELS (TYP.)
PRE-FIN. MTL. WALL OPENING TRIM (TYP.)
PRE-FIN. MTL. CORNER TRIM (TYP.)
FINISHED GRADE SLOPE AWAY FROM BLDG. (TYP.)
POURED CONC. FOUND. WALL & FOOTING (TYP.)
SOUTH ELEVATION
Scale 1/4"=1'-0"
DAVIT CRANE 50" MINIMUM RADIUS 112" MAXIMUM RADIUS (SEE CRANE NOTE)
LOW LEVEL SENSOR
AUTOMATIC LEVEL CONTROLLER (ALC) 3/8"Ø ANCHORS REQUIRED (NOTE: SEAL WATER-TIGHT TO CHANNEL WITH GROUT (BY OTHERS))
ONLINE UV TRANSMITTANCE CONTROLLER LOCATION TO BE DETERMINED
ONLINE UV TRANSMITTANCE SENSOR LOCATION TO BE DETERMINED
CONCRETE PAD SIZE AND LOCATION TO BE DETERMINED (BY OTHERS)
HSC 2'-6" x 1'-9" FOOTPRINT REQUIRED
4"Ø HYDRAULIC LINES CONDUIT (BY OTHERS) (TYPICAL)
BANK 1C
BANK 1D
BANK 1B
BANK 1A
FLOW
REMOVABLE GRATING (BY OTHERS) (TYPICAL)
LOCATION TO BE DETERMINED (INTERFACE SIDE TO BE POSITIONED AWAY FROM THE SUN)
SCC
DETAIL 4/3
Scale 1/4" = 1'-0"
EL = 22.50
NOTE: SEE DETAIL ½ FOR REINF.
EL = 17.50
BIT COATED EMBEDDED ALUMINUM ANGLE TO ACCEPT 1-1/2" ALUMINUM GRATING (TYP)
DETAIL 3/3
Scale 1/4" = 1'-0"
#5 @ 12 E.W. TOP & BOTTOM EQUIPMENT PAD
1-1/2" BANDED ALUM REMOVABLE GRATING
OPENING IN GRATING FOR CABLE ROUTING (TYPICAL)
ALC
6" CURB TOP OF CURB EL = 22.50
MAXIMUM DOWNSTREAM WL= 17.71
14" EFFLUENT PIPE
℄ EL = 15.10
EL = 17.50
EL = 17.88
½ FOR REINF.
32'-0"
DETAIL 1/3
Scale 1/4" = 1'-0"
#4 18" O.C. E.W.
HOOK ON VERT. BAR (TYP.)
6" CURB TOP OF CURB EL = 22.50
UPSTREAM WL= 19.41'
SLEEVE FOR 12" DIP ℄ EL = 15.00
MECHANICAL SEAL TYPICAL ALL PIPE PENETRATIONS
27'-0"
DETAIL 2/3
Scale 1/4" = 1'-0"
LICENSED ARCHITECT JAMES A. LIGHTY No C23820 EXP. 11.30.09 STATE OF CALIFORNIA

Manhard CONSULTING LTD

FERNDALE WASTEWATER TREATMENT PLANT

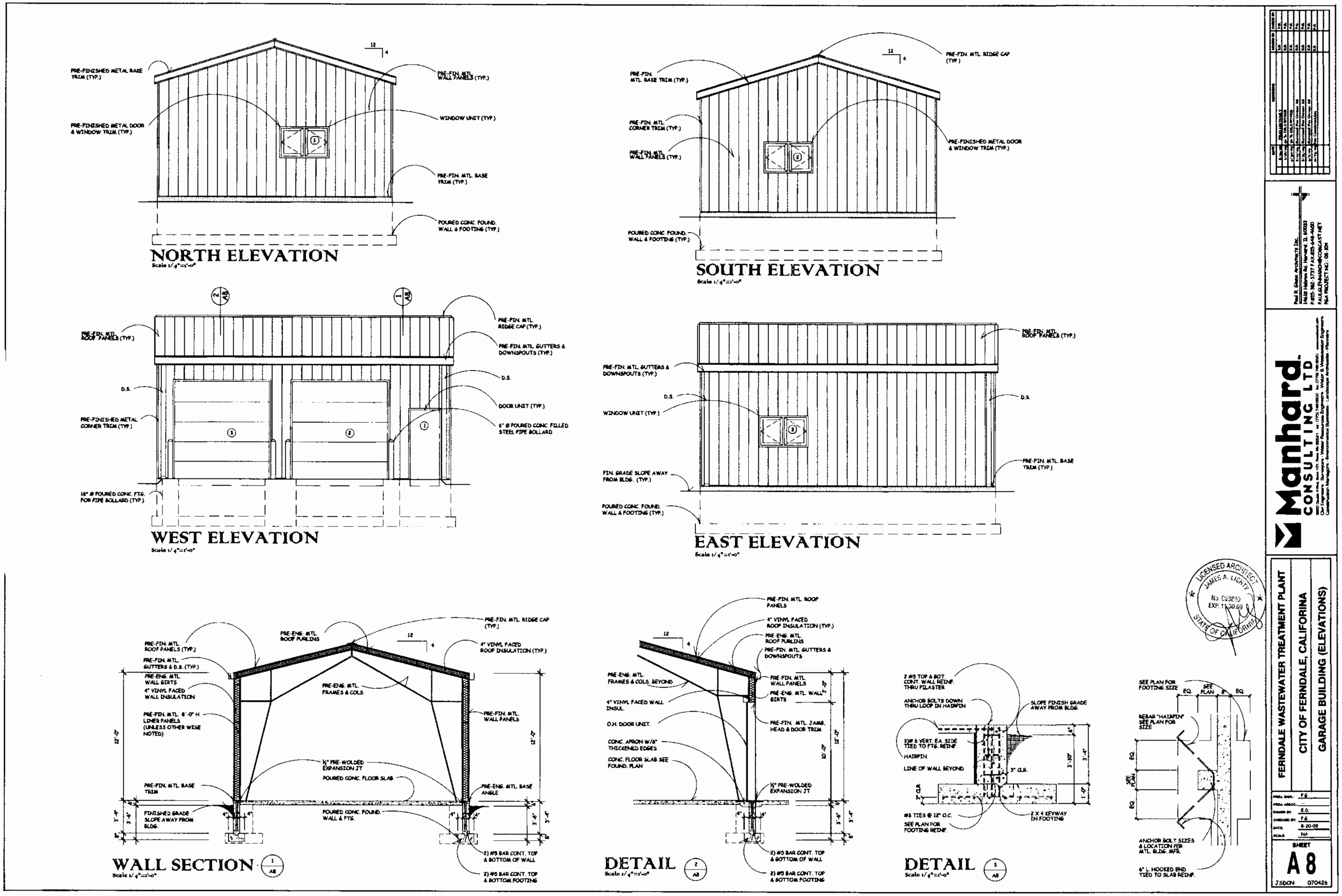
CITY OF FERNDALE, CALIFORINA

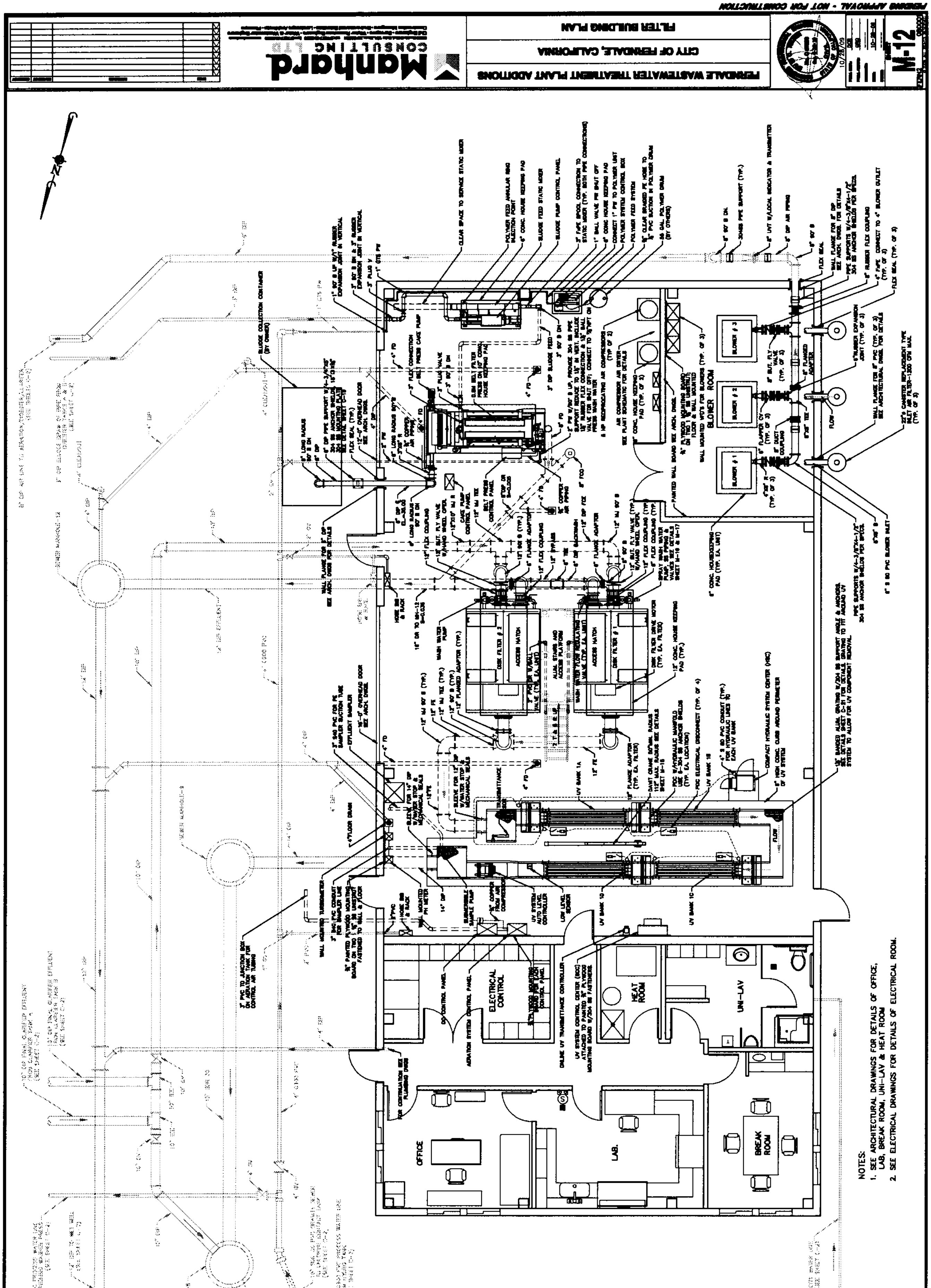
FILTER BUILDING (ELEVATIONS)

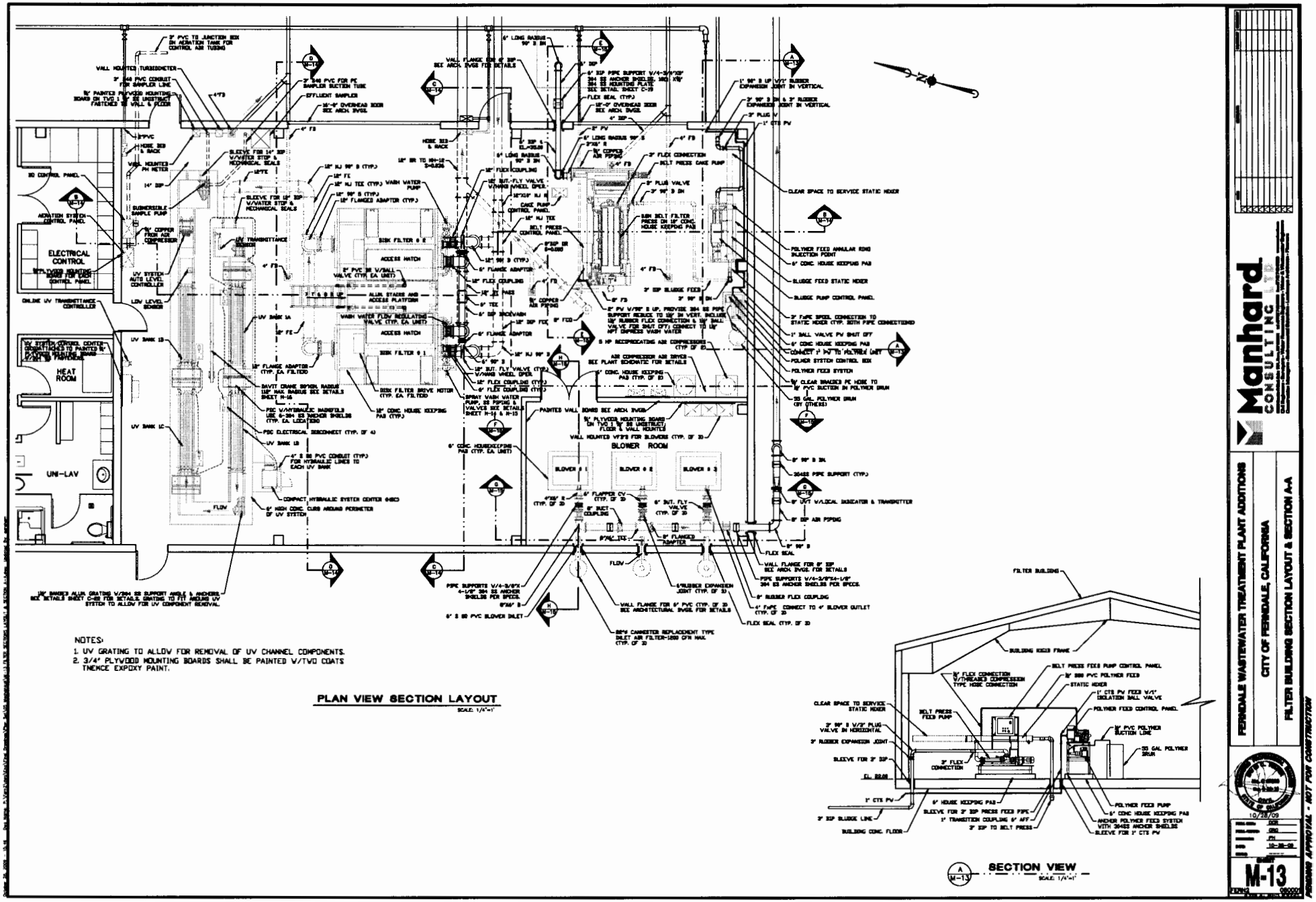
DRAWN BY: FD
CHECKED BY: P.G.
DATE: 8-20-09
SCALE: NA

SHEET A3

JSDCN 070426


PRE-FINISHED METAL RAKE TRIM (TYP.)
PRE-FIN. MTL. WALL PANELS (TYP.)
PRE-FINISHED METAL DOOR & WINDOW TRIM (TYP.)
WINDOW UNIT (TYP.)
PRE-FIN. MTL. BASE TRIM (TYP.)
POURED CONC. FOUND. WALL & FOOTING (TYP.)
NORTH ELEVATION
Scale 1/4"=1'-0"
PRE-FIN. MTL. RIDGE CAP (TYP.)
PRE-FIN. MTL. RAKE TRIM (TYP.)
PRE-FIN. MTL. CORNER TRIM (TYP.)
PRE-FIN. MTL. WALL PANELS (TYP.)
PRE-FINISHED METAL DOOR & WINDOW TRIM (TYP.)
POURED CONC. FOUND. WALL & FOOTING (TYP.)
SOUTH ELEVATION
Scale 1/4"=1'-0"
PRE-FIN. MTL. ROOF PANELS (TYP.)
PRE-FIN. MTL. RIDGE CAP (TYP.)
PRE-FIN. MTL. GUTTERS & DOWNSPOUTS (TYP.)
D.S.
DOOR UNIT (TYP.)
6" Ø POURED CONC. FILLED STEEL PIPE BOLLARD
PRE-FINISHED METAL CORNER TRIM (TYP.)
18" Ø POURED CONC. FTG. FOR PIPE BOLLARD (TYP.)
WEST ELEVATION
Scale 1/4"=1'-0"
PRE-FIN. MTL. ROOF PANELS (TYP.)
PRE-FIN. MTL. GUTTERS & DOWNSPOUTS (TYP.)
D.S.
WINDOW UNIT (TYP.)
PRE-FIN. MTL. BASE TRIM (TYP.)
FIN. GRADE SLOPE AWAY FROM BLDG. (TYP.)
POURED CONC. FOUND. WALL & FOOTING (TYP.)
EAST ELEVATION
Scale 1/4"=1'-0"
PRE-FIN. MTL. ROOF PANELS (TYP.)
PRE-FIN. MTL. GUTTERS & D.S. (TYP.)
PRE-ENG. MTL. WALL GIRTS
4" VINYL FACED WALL INSULATION
PRE-FIN. MTL. 8'-0" H. LINER PANELS (UNLESS OTHER WISE NOTED)
PRE-FIN. MTL. BASE TRIM
FINISHED GRADE SLOPE AWAY FROM BLDG.
PRE-ENG. MTL. ROOF PURLINS
PRE-ENG. MTL. FRAMES & COLS.
1/2" PRE-WOLDED EXPANSION JT
POURED CONC. FLOOR SLAB
POURED CONC. FOUND. WALL & FTG.
PRE-FIN. MTL. RIDGE CAP (TYP.)
4" VINYL FACED ROOF INSULATION (TYP.)
PRE-FIN. MTL. WALL PANELS
PRE-ENG. MTL. BASE ANGLE
2) #5 BAR CONT. TOP & BOTTOM OF WALL
2) #5 BAR CONT. TOP & BOTTOM FOOTING
WALL SECTION
Scale 1/4"=1'-0"
PRE-ENG. MTL. FRAMES & COLS. BEYOND
4" VINYL FACED WALL INSUL.
O.H. DOOR UNIT.
CONC. APRON W/8" THICKENED EDGES
CONC. FLOOR SLAB SEE FOUND. PLAN
PRE-FIN. MTL. ROOF PANELS
4" VINYL FACED ROOF INSULATION (TYP.)
PRE-ENG. MTL. ROOF PURLINS
PRE-FIN. MTL. GUTTERS & DOWNSPOUTS
PRE-FIN. MTL. WALL PANELS
PRE-ENG. MTL. WALL GIRTS
PRE-FIN. MTL. JAMB, HEAD & DOOR TRIM
1/2" PRE-WOLDED EXPANSION JT
2) #5 BAR CONT. TOP & BOTTOM OF WALL
2) #5 BAR CONT. TOP & BOTTOM FOOTING
DETAIL
Scale 1/4"=1'-0"
2 #5 TOP & BOT. CONT. WALL REINF. THRU PILASTER
ANCHOR BOLTS DOWN THRU LOOP IN HAIRPIN
3/8 6 VERT. E.A. SIDE TIED TO FTG. REINF.
HAIRPIN
LINE OF WALL BEYOND
#3 TIES @ 12" O.C.
SEE PLAN FOR FOOTING REINF.
SLOPE FINISH GRADE AWAY FROM BLDG.
3" CLR.
2 X 4 KEYWAY IN FOOTING
DETAIL
Scale 1/4"=1'-0"
SEE PLAN FOR FOOTING SIZE
REBAR "HAIRPIN" SEE PLAN FOR SIZE
ANCHOR BOLT SIZES & LOCATION PER MTL. BLDG. MFR.
6" L HOOKED END TIED TO SLAB REINF.
LICENSED ARCHITECT
JAMES A. LICHTY
No. C23825
EXP. 11.30.09
STATE OF CALIFORNIA
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT
CITY OF FERNDALE, CALIFORINA
GARAGE BUILDING (ELEVATIONS)
SHEET
A8
JSDCN 070426


PENDING APPROVAL - NOT FOR CONSTRUCTION
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
FILTER BUILDING PLAN
M-12
BLOWER ROOM
DISK FILTER # 2
DISK FILTER # 1
ACCESS HATCH
ELECTRICAL CONTROL
HEAT ROOM
UNI-LAV
OFFICE
LAB.
BREAK ROOM
NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF OFFICE, LAB, BREAK ROOM, UNI-LAV & HEAT ROOM
2. SEE ELECTRICAL DRAWINGS FOR DETAILS OF ELECTRICAL ROOM.



NOTES:
1. UV GRATING TO ALLOW FOR REMOVAL OF UV CHANNEL COMPONENTS.
2. 3/4" PLYWOOD MOUNTING BOARDS SHALL BE PAINTED W/TWO COATS THEMICE EXPOXY PAINT.

PERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF PERNDALE, CALIFORNIA
FILTER BUILDING SECTION LAYOUT & SECTION A-A

Manhard CONSULTING

10/28/09

M-13

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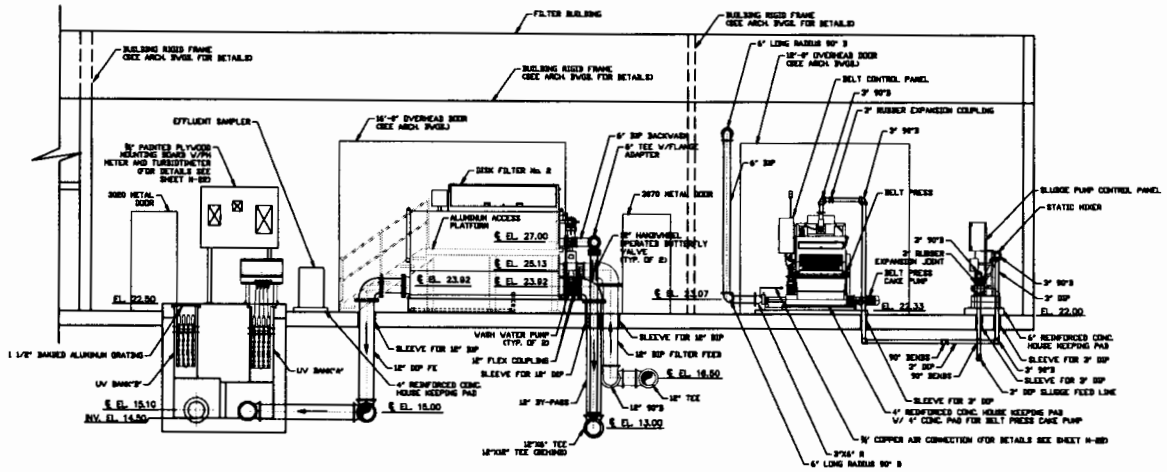
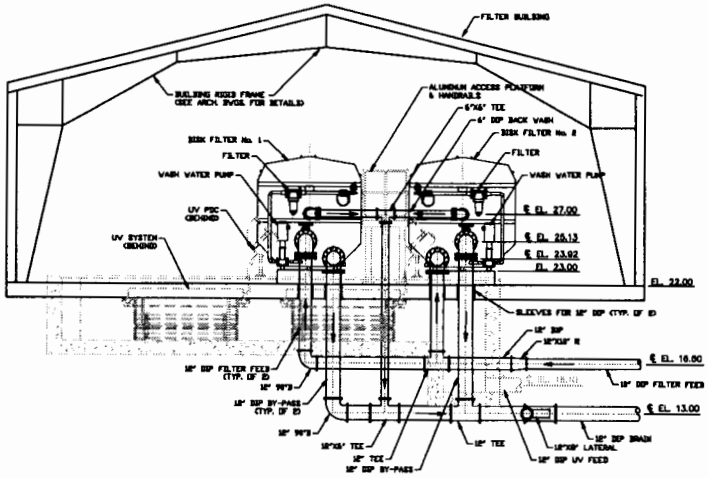
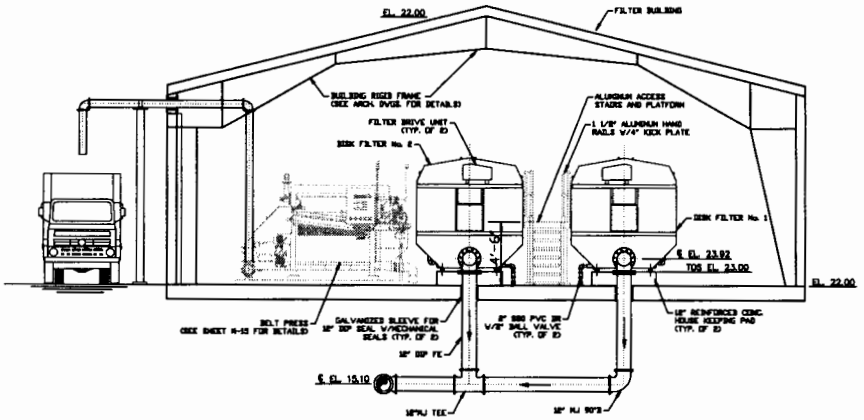


B M-13 **SECTION VIEW**
SCALE: 1/4"=1'



C M-13 **SECTION VIEW**
SCALE: 1/4"=1'



D M-13 **SECTION VIEW**
SCALE: 1/4"=1'

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
FILTER BUILDING SECTIONS B-B,C-C, & D-D

Manhard CONSULTING

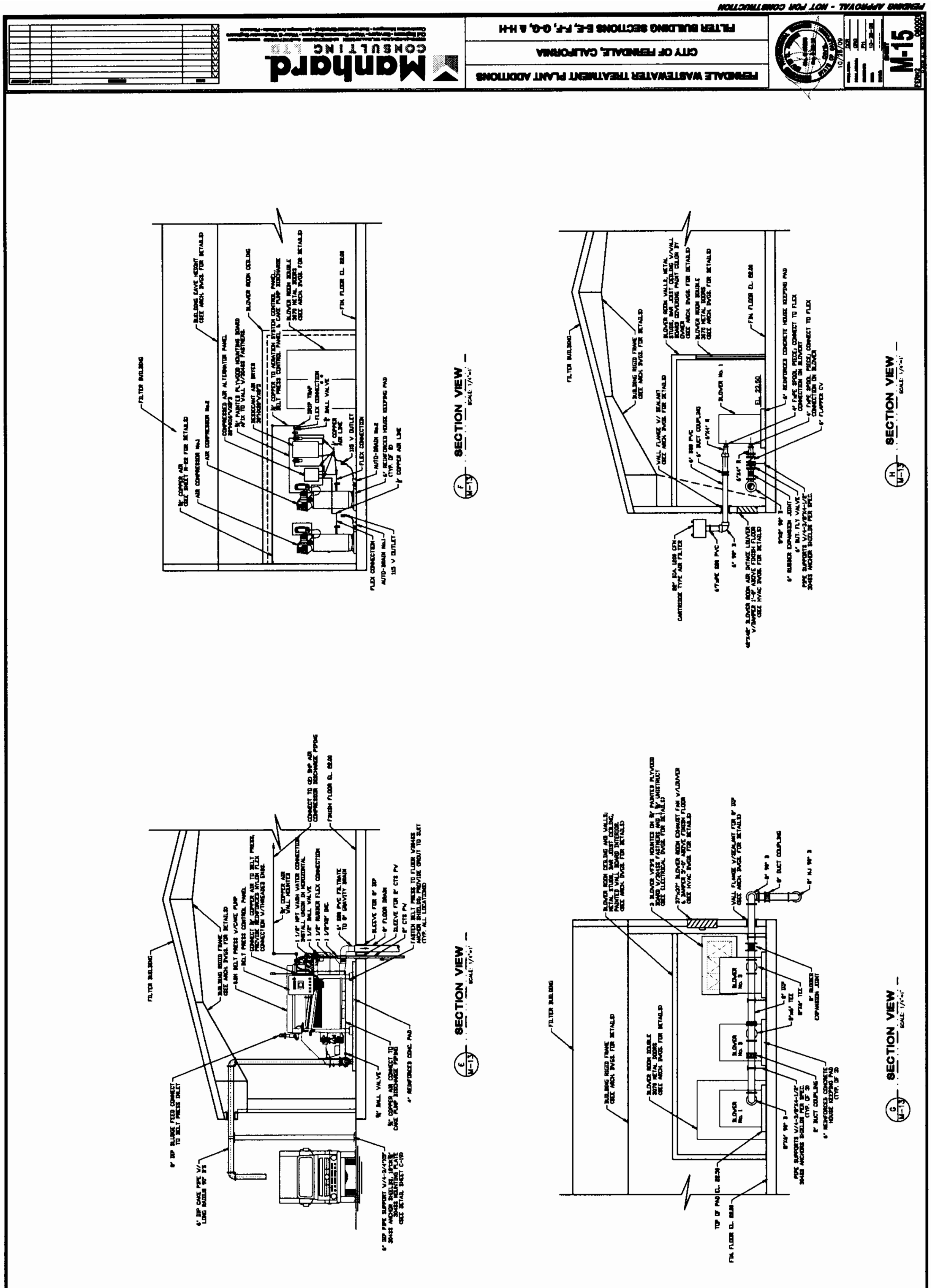
STATE OF CALIFORNIA
10/28/09

DES	
DRN	
CK	
10-28-09	

M-14

FOR BID APPROVAL - NOT FOR CONSTRUCTION

27 of 30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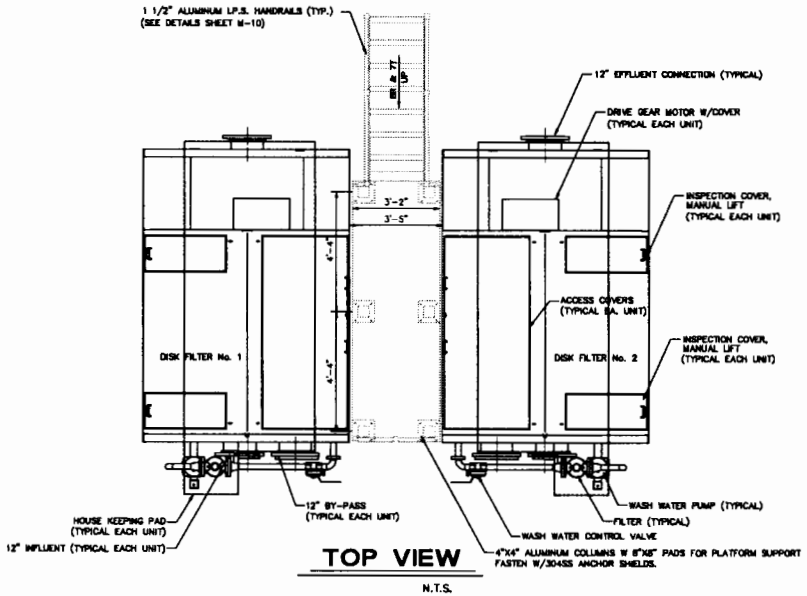
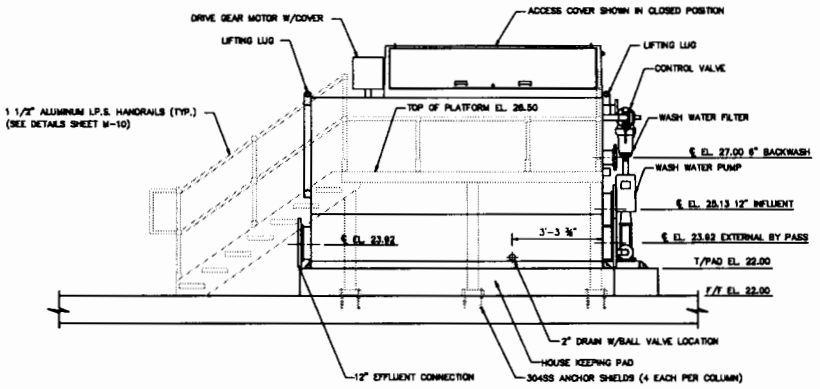
Manhard CONSULTING LTD
FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
FILTER BUILDING SECTIONS E-E, F-F, G-G, & H-H
M-15
SECTION VIEW
SECTION VIEW
SECTION VIEW
SECTION VIEW



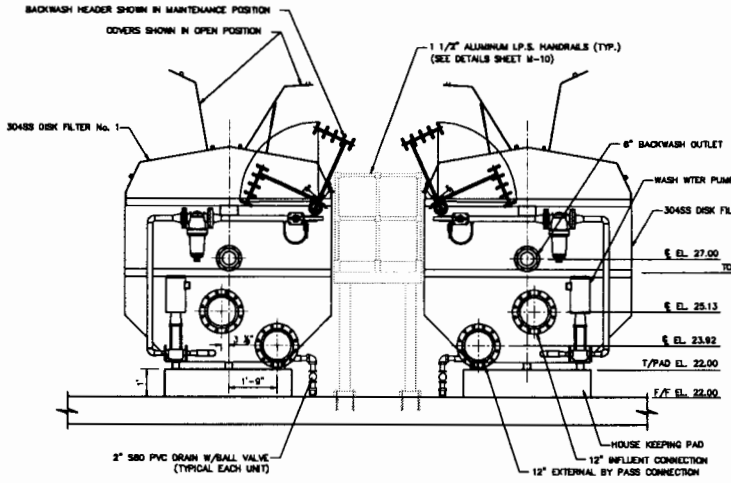
TOP VIEW

N.T.S.



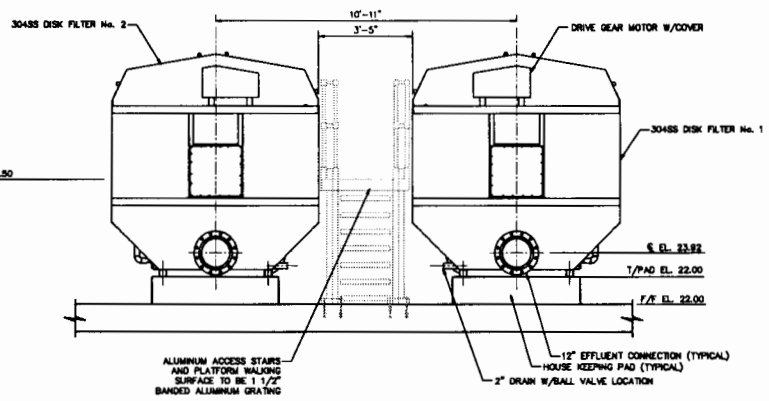
SIDE VIEW

N.T.S.



INFLUENT SIDE VIEW

N.T.S.



EFFLUENT SIDE VIEW

N.T.S.

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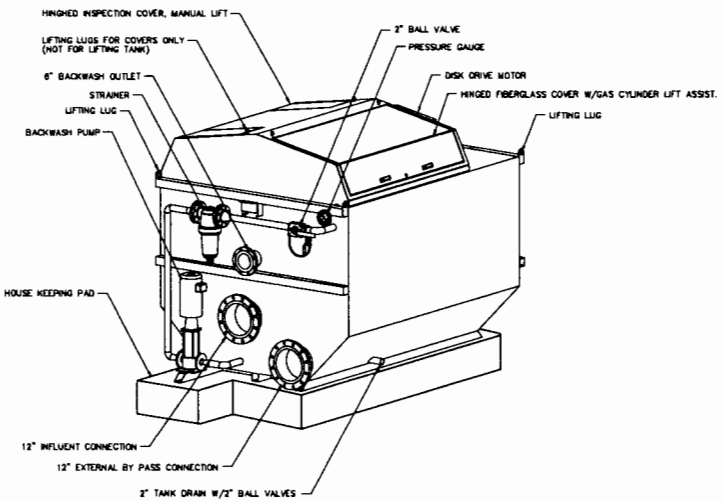
PERRIS WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF PERRIS, CALIFORNIA
FILTER BUILDING DETAILS 1

10/28/09

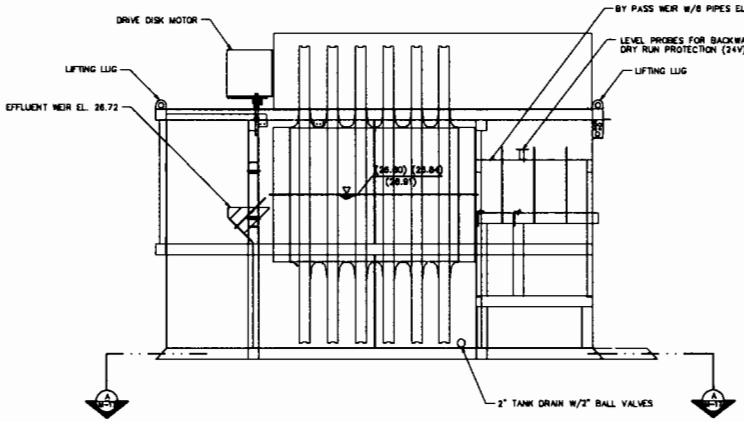
M-16

PERMIT SET - NOT FOR CONSTRUCTION

29 of 30

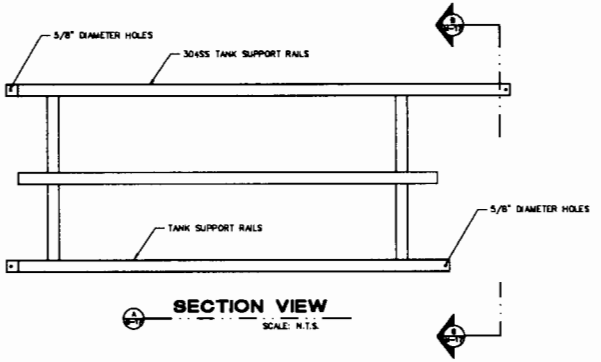


ISOMETRIC VIEW



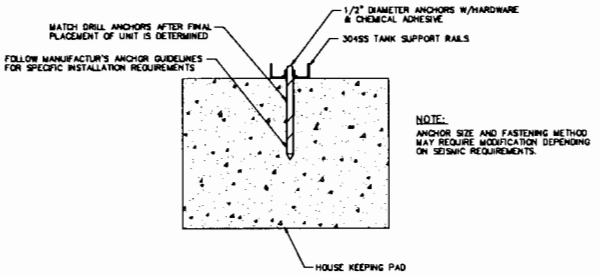
INTERNAL CROSS SECTION

(PUMPS & FLANGES NOT SHOWN FOR CLARITY)



SECTION VIEW

SCALE: N.T.S.



NOTE:
ANCHOR SIZE AND FASTENING METHOD MAY REQUIRE MODIFICATION DEPENDING ON SEISMIC REQUIREMENTS.

SECTION VIEW ANCHOR DETAIL

SCALE: N.T.S.

NOTES:

1. PEAK HYDRAULIC LOADING RATE=3.54 GPM/F^2
   TOTAL FILTER AREA PER UNIT= 301 F^2
   SUBMERGED FILTER AREA PER UNIT=195 F^2
2. UNIT WEIGHT (DRY) = 6,380 LBS APPROX.
3. UNIT WEIGHT(OPERATIONAL) = 25,960 LBS (11,800 KG) APPROX.
4. BACKWASH PUMP: GRUNDFOS CR5-14, 5.0 HP, 480V/3PH/60HZ, 2" ANSI FLANGE
5. DRIVE MOTOR: 1.5HP, 480V/3PH/60HZ
6. INLET, OUTLET & BY PASS CONNECTIONS: BOLT PATTERN MATCHES ANSI B16.5, 10" INLET FLANGE, 12" OUTLET FLANGE, 12" OVERFLOW FLANGE, 6" BACKWASH FLANGE
   SLIP ON PLATE FLANGES= GALVANIZED
   SLIP ON FLANGE STUB ENDS= AISI 304
7. BACKWASH CONNECTION: BOLT PATTERN MATCHES 6" ANSI B16.5,
   SLIP ON PLATE FLANGES= GALVANIZED
   SLIP ON FLANGE STUB ENDS= AISI 304
8. DRUM, WALLS & FRAME MATERIAL= AISI 304
9. COVER MATERIAL: FIBERGLASS REINFORCED PLASTIC (FRP);
10. WORK PLATFORM GRATING AND SUPPORT SHALL NOT BE ATTACHED TO FILTERS, SIZE AND LOCATION SHOWN ON SHEET M-16. PLATFORMS OR OTHER LOAD BEARING MEMBERS SHALL NOT BE SUPPORTED FROM THE FILTER.

Manhard CONSULTING LTD.

FERNDALE WASTEWATER TREATMENT PLANT ADDITIONS
CITY OF FERNDALE, CALIFORNIA
FILTER BUILDING DETAILS 2

10/28/09

M-17

ISSUED FOR APPROVAL - NOT FOR CONSTRUCTION

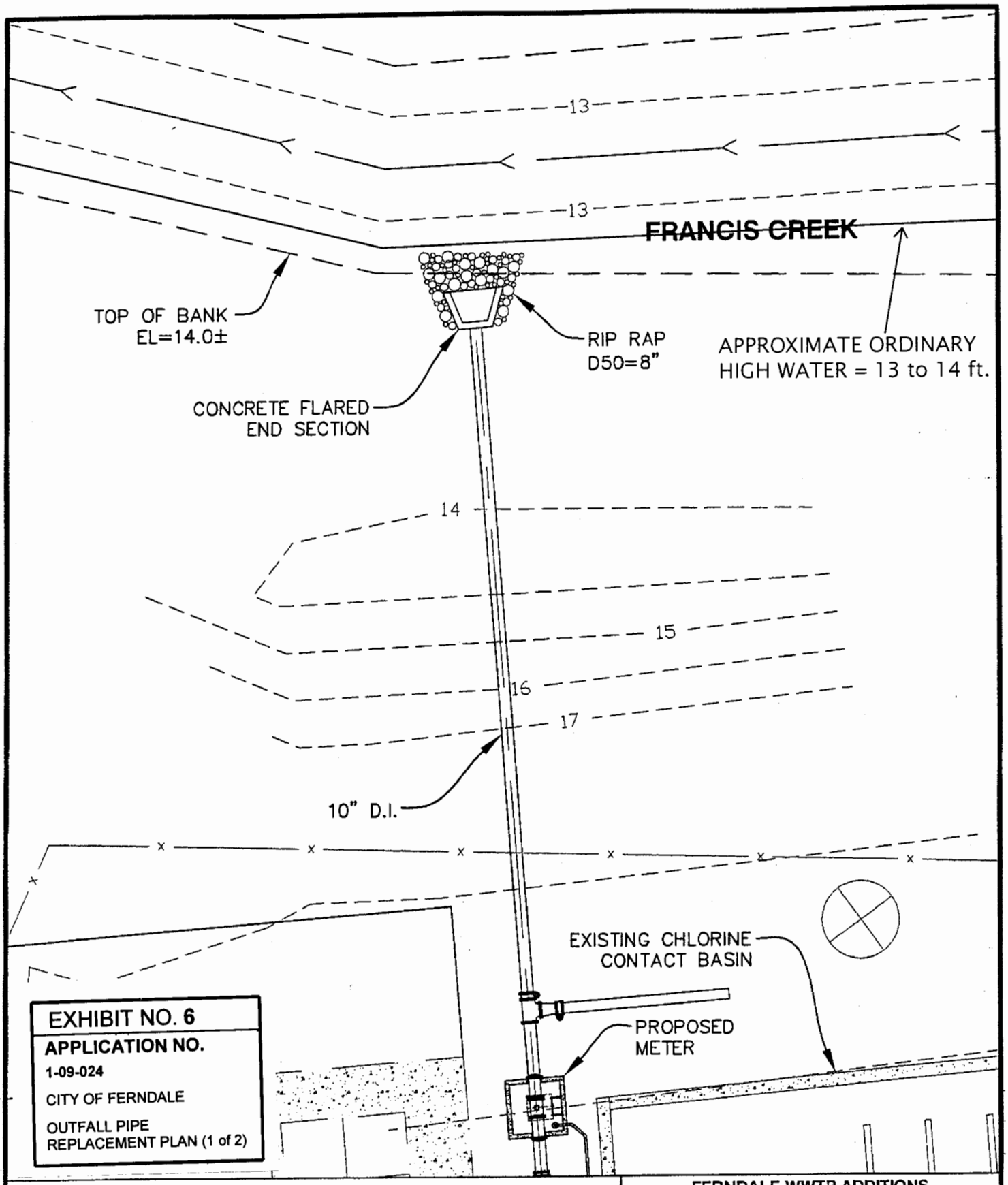


EXHIBIT NO. 6

APPLICATION NO.

1-09-024

CITY OF FERNDALE

OUTFALL PIPE
REPLACEMENT PLAN (1 of 2)

Manhard™ CONSULTING LTD

9850 Double R Blvd, Suite 101, Reno, NV 89521 tel: (775) 746-3500 fax: (775) 746-3520 www.manhard.com

Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

FERNDALE WWTP ADDITIONS

CITY OF FERNDALE, CALIFORNIA

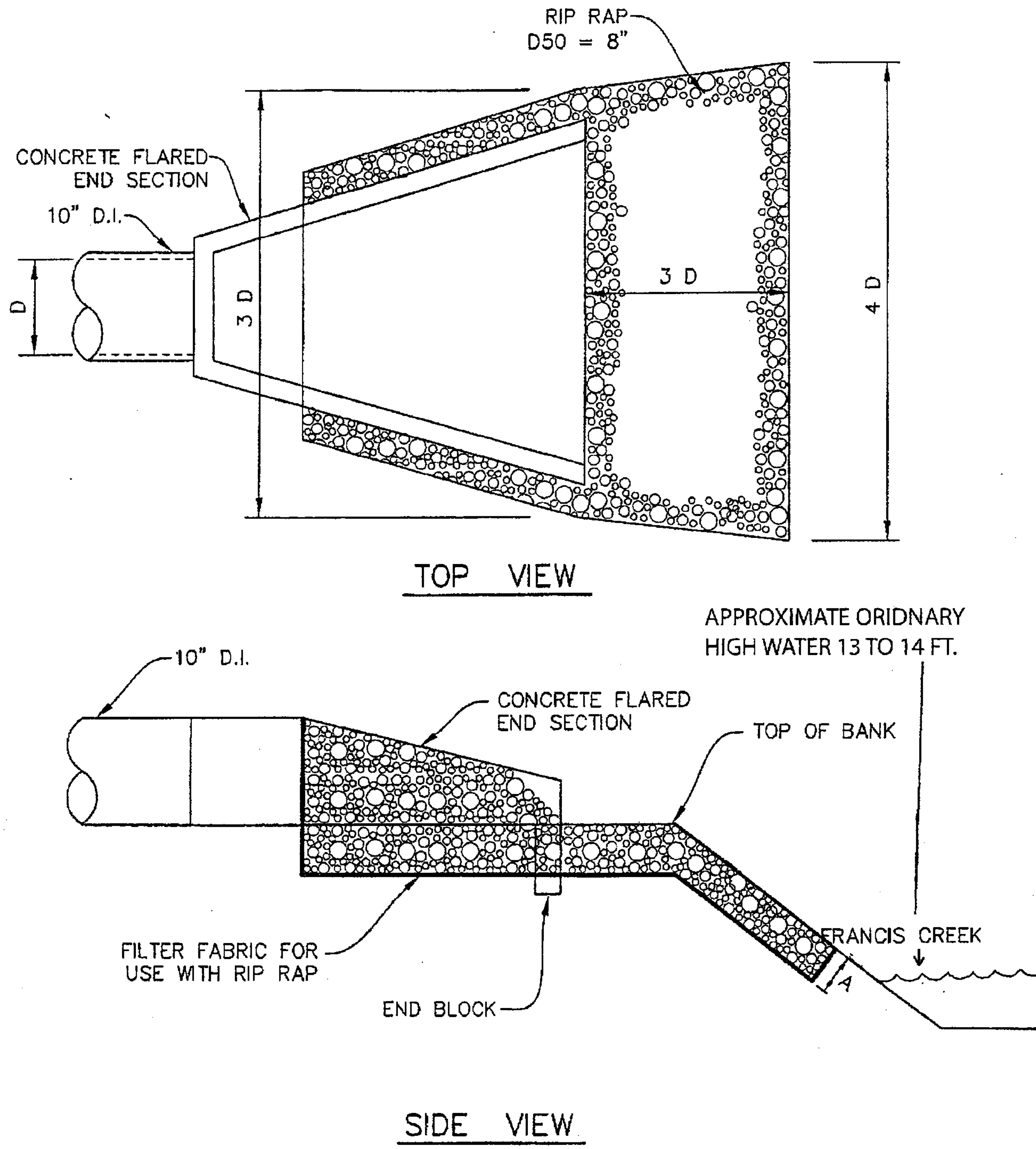
EFFLUENT DISCHARGE TO CREEK

PROJ. MGR.:	DCR
DRAWN BY:	GRG
DATE:	6/24/09
SCALE:	1"=10'

SHEET

FIGURE 1

FERN2 080001



Manhard CONSULTING LTD

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Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

FERNDALE WWTP ADDITIONS
CITY OF FERNDALE, CALIFORNIA
RIP RAP DETAIL

PROJ. MGR.: DCR
DRAWN BY: GRG
DATE: 6/24/09
SCALE: N.T.S.

SHEET
FIGURE 2
FERN2 080001

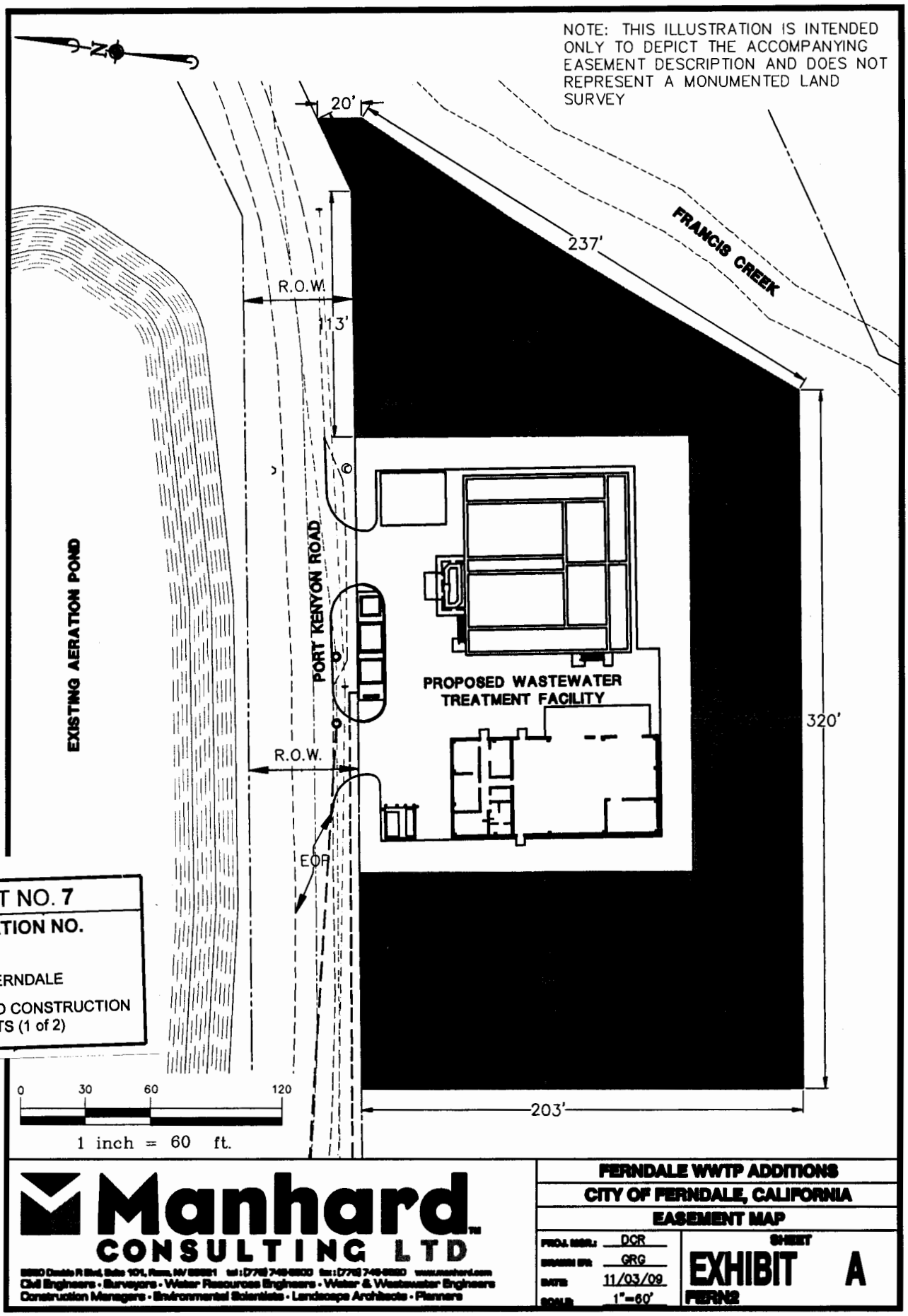

EXHIBIT NO. 7

APPLICATION NO.

1-09-024

CITY OF FERNDALE

PROPOSED CONSTRUCTION EASEMENTS (1 of 2)

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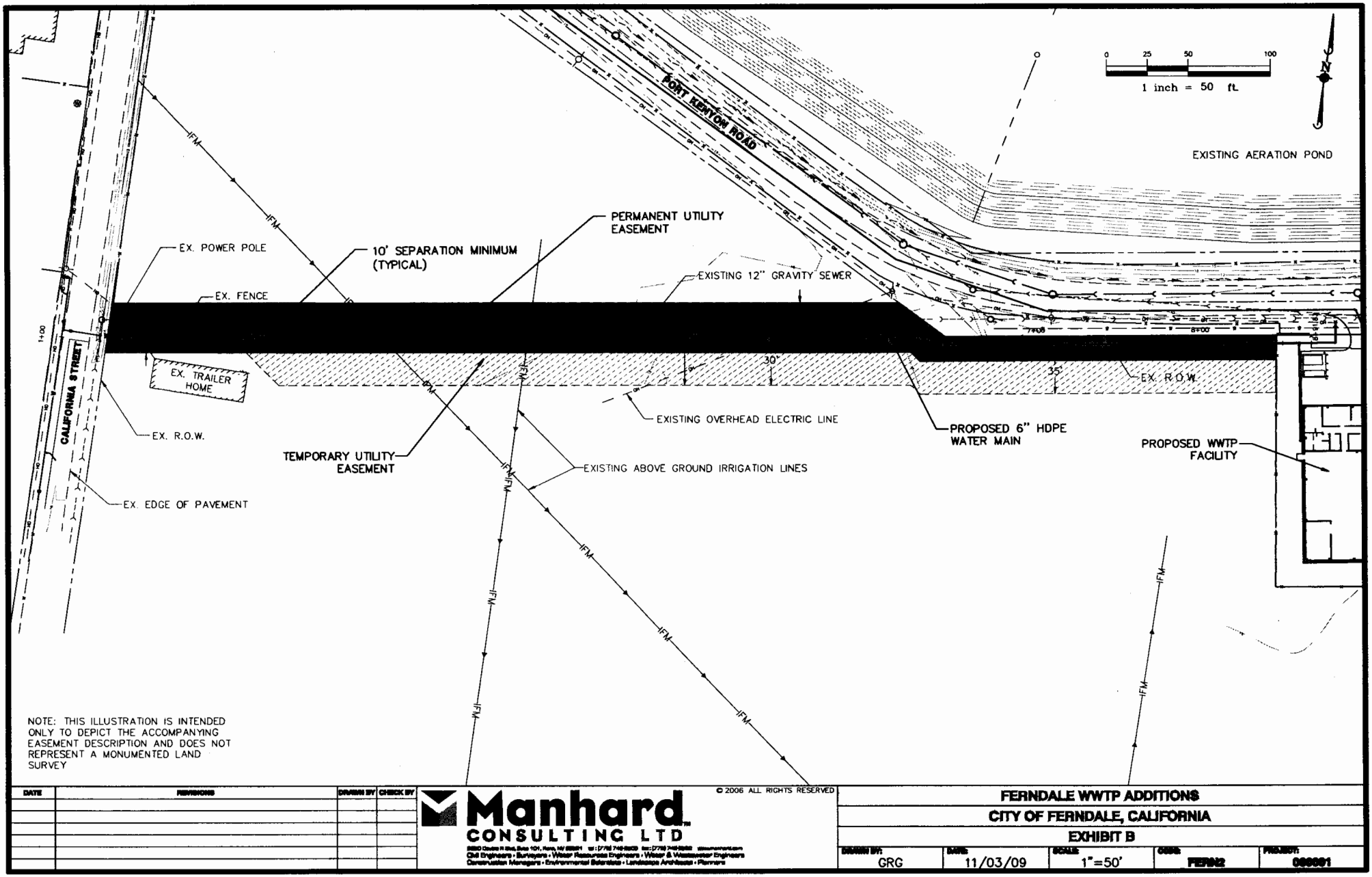
FERNDALE WWTP ADDITIONS

CITY OF FERNDALE, CALIFORNIA

EASEMENT MAP

PROJ. MGR.: DCR
DRAWN BY: GRG
DATE: 11/03/09
SCALE: 1"=60'

SHEET
EXHIBIT A
FERN2



NOTE: THIS ILLUSTRATION IS INTENDED ONLY TO DEPICT THE ACCOMPANYING EASEMENT DESCRIPTION AND DOES NOT REPRESENT A MONUMENTED LAND SURVEY

DATE	REVISIONS	DRAWN BY	CHECK BY

Manhard CONSULTING LTD

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Construction Managers • Environmental Scientists • Landscape Architects • Planners

FERNDALE WWTP ADDITIONS

CITY OF FERNDALE, CALIFORNIA

EXHIBIT B

DRAWN BY:	DATE:	SCALE:	CADD:	PROJECT:
GRG	11/03/09	1"=50'	FERN2	090091

2 of 2

Mitigation Monitoring Plan - Ferndale WWTF March 2009				
MITIGATION MEASURE	**DESCRIPTION**	**RESPONSIBLE PARTY**	**SCHEDULE**	**MEASURE OF COMPLETION**
M-1	Final construction plans will include a lighting plan that shows all exterior lighting as shielded/ directional lighting.	Project Engineer	Review for compliance at time of building permit	Shown on final plans.
M-2	This measure has been removed.			
M-3	Best Management Practices will be utilized during construction to control airborne dust. Such practices may include wet suppression, mulching, stabilized construction entrance, covering of trucks hauling soil or other loose material, and minimizing the disturbed area.	Project Contractor	Dust control plan submitted with grading permit. Monitor for compliance during construction.	Approved at time of grading permit.
M-4	Outfall pipe replacement is subject to Clean Water Act Section 404 permit and Section 401 Water Quality Certification, Coastal Development Permit, and CDFG Stream Alteration Agreement. Outfall pipe plans will be submitted with these permit applications and permitted prior to installation. All work will comply with all conditions of the permits and agreements.	City Planner/ Engineer	Obtain permits prior to commencement of construction. Monitor for compliance during construction.	Permits approved prior to construction commencement.
M-5	If buried archaeological or historical resources are encountered during construction activities, the contractor on-site shall call all work in the immediate area to a halt temporarily, and a qualified archaeologist is to be contacted to evaluate the materials. If prehistoric materials are found the Wiyot Tribe and Bear River Band of Rohnerville Rancheria will be contacted, in addition to a qualified Registered Professional Archaeologist. Prehistoric materials may include obsidian or chert flakes, tools, locally darkened midden soils, groundstone artifacts, dietary bone, and human burials. If human burial is found during construction, state law requires that the County Coroner be contacted immediately. If the remains are found to be those of Native American, the California Native American Heritage Commission will then be contacted by the Coroner to determine the	Project Contractor	Monitor during construction.	Monitor signs off at completion of construction.

	appropriate treatment of the remains.			
M-6	The City will ensure that all construction activities utilize best management practices for erosion and sediment control. A construction Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and implemented during construction. The SWPPP shall identify measures to manage exposed soils, control deposition of pollutants by construction vehicles, cleanup spills of oil, fuel and other pollutants, and prevent pollutants from leaving the construction site in runoff. The SWPPP shall also identify Best Management Practices (BMPs) to avoid significant sedimentation in runoff from the construction site. These BMPs shall include, but shall not necessarily be limited to, the following: • Schedule excavation and grading work for dry weather; • Avoid excavation and grading activities during wet weather; • Avoid runoff while applying water for dust control; • Do not hose-down dirty pavement or other impermeable surfaces where fluids have spilled; • Cover stockpiled soil with tarps or plastic sheeting if precipitation is expected; • Utilize re-vegetation for erosion control after clearing, grading and excavating; • Plant permanent vegetation immediately after construction; • For ground disturbing activities adjacent to water bodies, no construction site runoff shall enter these water bodies without going through settling ponds, filtering and oil/grit separators.	Project Contractor	Management plan submitted with grading permits.	Approval of management plan with grading permits.
M-7	All new buildings will be elevated above the base flood elevation and will comply with standards of development within the flood zone.	Project Engineer/ Contractor	Review for compliance at time of building permit.	Shown on final plans.
M-8	Construction personnel will conduct all work activities in a	Project	Construction hours & operations plan	No noise violations at

	manner that minimizes noise generation. A variety of contractor actions are available to reduce construction noise, including: (i) turning off engines on all equipment not in active use, (ii) avoiding using equipment near occupied structures as much as possible, (iii) shielding noisy equipment with less-noisy equipment and with closely stacked hay bales, and (iv) avoiding high-rpm (revolutions per minute) engine operation whenever possible. When activity involving drilling and heavy construction equipment is scheduled to occur within 1,000 feet of occupied structures, the project proponent will provide signage and notification at least 72 hours prior to the start of the activity. The signs will be placed in a conspicuous location on Port Kenyon Road, entry and exit point, of the project area. The signage and notification will indicate the approximate duration of time (dates and hours) during which the noise-generating activity is expected to occur.	Contractor	submitted with grading permit. Monitor for compliance during construction.	construction completion.
M-9	Hours of construction for noisy outdoor activities (that may be received off-site) will be limited to Monday through Friday 7:00 a.m. to 7:00 p.m. and weekends and holidays from 9:00 a.m. to 6:00 p.m.	Project Contractor	Construction hours & operations plan submitted with grading permit. Monitor for compliance during construction.	No noise violations at construction completion.

FERNDALE WASTEWATER TREATMENT PLANT WETLAND MITIGATION AND MONITORING PLAN CITY OF FERNDALE, CALIFORNIA

PREPARED FOR:
The City of Ferndale

PREPARED BY:

Manhard CONSULTING

November 2009

TABLE OF CONTENTS

INTRODUCTION

BACKGROUND

The City of Ferndale (City) is upgrading its Wastewater Treatment Facility (WWTF) in order to meet the Water Quality Control Plan for the North Coast Region ("Basin Plan") 100:1 receiving-water-to-effluent dilution requirement set in the City NPDES permit (NPDES permit number #CA0022721). Currently there are insufficient surface water flows in the Salt River and Francis Creek for the city to meet the Basin Plan dilution ratio.

Williams Creek, the main Salt River tributary upstream of the WWTF, changed course in April 1998 because of storm-caused debris blockage. The Federal Emergency Management Agency (FEMA) declaration FEMA-1203-DR-CA. Williams Creek now drains into the Lower Eel River southeast of Fernbridge, and no longer contributes surface water flow to the Salt River. This flow diversion has significantly reduced the surface water volume available to dilute the City's treated wastewater discharge to the Salt River via Francis Creek.

Currently, the Francis Creek Watershed and Ferndale's West Side Watershed provide the main flow to the Salt River. With only these surface water flows into the Salt River, the 100:1 Basin Plan receiving-water-to-effluent discharge requirement is rarely met. This is the basis for an (effluent) discharge Cease and Desist Order (CDO No. R1-2003-0049) issued by the RWQCB on May 15, 2003, with a task list outlining a compliance timetable. This CDO was amended with CDO Nos. R1-2005-0087 on October 12, 2005 and R1-2006-0109 on November 29, 2006; and most recently with CDO No. R1-2008-0110 on December 11, 2008. The City actively investigated alternatives to achieve compliance with its discharge permit by complying with the CDO tasks and schedule.

WWTF Project Description

The proposed WWTF consists of the following components to be constructed on parcels of the existing WWTF:

- Replacement of the existing Influent Pump Station,
- Expansion of the existing headworks facility,
- Conversion of existing aeration pond to a stormwater basin,
- Extended aeration treatment process - Sequox as provided by aeromod, located south of Port Kenyon Road,
- Disinfection/ control building, 4,275 square feet in size, with two disc filters and ultraviolet disinfection, located south of Port Kenyon Road,
- Conversion of existing chlorine contact basin to a wet well for new effluent pump station, and
- Spray irrigation fields and point of discharge.

The WWTF project location and location of the proposed mitigation area are provided in Figures 1 and 2. The existing headworks building is located in a fenced area on the south side of Port Kenyon Road (headworks site); of which 0.085 acres is developed (3,271 square-feet) and 0.655 acres of the site is covered with vegetation (Figure 3). The existing aeration pond, finishing pond, chlorine contact basin and control building are located in a fenced area, approximately 9.5 acres, on the north side of Port Kenyon road. (Sheet C2-11, Attached Plan Set)

The majority headworks site will be developed with a new, expanded headworks building, new treatment basin, and a new disinfection/ control building. All influent will be treated on this site and then pumped to the converted chlorine contact basin on the north side of Port Kenyon

Road. The existing aeration pond located off the north side of Port Kenyon Road will be utilized as a stormwater basin for overflow during storm events. The proposed stormwater basin will be constructed within the footprint of the existing aeration pond. The existing pipe at the point of discharge on Francis Creek will be replaced affecting approximately 0.03 acres of Riverine wetland area (due to bank stabilization procedures).

A Wetland Delineation and Report (Wetland Report), dated August 27, 2009, was prepared for the undeveloped portion of the headworks works site. Prior to this analysis the site was classified as upland. No U.S. Army Corp of Engineers (USACE) jurisdictional wetlands were identified on the site. However, the project site is located in the coastal zone and is regulated under the Coastal Act. In the Wetland Report 0.007 acres was identified as potential CCC jurisdictional wetlands based hydrophytic vegetation. However, due to the fact that the site has been used as a waste spoils site for at least the past 30 years, in which piles of wood debris, grass clippings, asphalt grindings, and other debris materials lay within the project area; CCC staff has asked for more analysis to confirm the entire undeveloped portion of the headworks site is **not** disturbed CCC jurisdictional wetland. Rather than perform additional analysis, the City of Ferndale has opted to mitigate for the entire undeveloped portion of the headworks site, including the Riverine area affected by the pipe replacement on Francis Creek. The total area to be mitigated for is the 0.655 acres of undeveloped area of the headworks site and 0.03 acres where pipe replacement on Francis Creek will occur.

PURPOSE

The purpose of this document is to describe the proposed compensatory Wetland Mitigation and Monitoring Plan (Plan) for mitigating the potential wetland and Riverine impacts that would result from the proposed WWTF upgrade. The proposed compensatory wetland mitigation area is 1.55 acres. This includes mitigating disturbed wetland at two to one, or 1.31 acres, and mitigating disturbed Riverine at four to one, or 0.12 acres.

This Plan is intended to satisfy the anticipated conditions of approval for the Coastal Development Permit Application No. 1-09-024 for the impacts that will occur at the headworks parcel where the WWTF upgrade will occur and pipe replacement at Francis Creek. The proposed compensatory mitigation measures described in this Plan address the direct, indirect, and cumulative impacts associated with the proposed WWTF upgrade.

PROJECT OBJECTIVES AND SCOPE

The overall objective of this Plan is to replace the functions and values of wetland that will be impacted at the headworks site and the wetland that will be impacted due to outlet protection that will be installed as part of the outlet pipe replacement. Included in this Plan are the following:

1. A classification of the existing wetland within the project area and an assessment of its functions under baseline conditions,
2. A quantitative assessment of the direct and indirect impacts of the project in terms of area of wetland lost and wetland functions lost,
3. Identification of proposed mitigation measures believed necessary to achieve the goal of "no net loss," and
4. A summary of the results of a functional assessment that quantitatively assesses the efficacy of the proposed compensatory mitigation measures.

PROJECT SUMMARY

PROJECT LOCATION

The WWTF upgrade project area is located in the unincorporated area of Humboldt County just north of the City limits on two City owned parcels (APN's 100-161-08 and 100-162-20). The proposed mitigation area is located on parcel 100-161-08, located just north of the intersection of Port Kenyon Road and California Street, within the developed portions of the existing finishing pond and aeration pond (Figure 2 and Plan Set).

Historical Information

The City, by resolution, accepted a bid to begin construction of the ponds and chorine contact basin (referred to as the Sewer Lagoon Project), according to the plans and specifications developed by the City Engineer at the time, on January 8, 1973 (City's official Council Meeting Minutes dated January 8, 1973), just prior to enactment of Chapter 5, Interim Permit Control, of the Coastal Zone Development Act (Proposition 20). The City adopted Resolution No. 409, accepting completion of the Sewer Lagoon Project (inspected and approved by the City Engineer), on January 7, 1974.

PROJECT DESCRIPTION

As discussed above, the City is upgrading the WWTF to meet current water quality and wastewater discharge standards. The WWTF seasonally discharges treated effluent into Francis Creek, which ultimately flows into the Salt River. The treatment works for the upgrade will cover the majority of within the headworks parcel. The City has opted to mitigate for the impact to potential wetlands on the undeveloped portion of the headworks parcel. The potential wetland within the headworks parcel that will be impacted, less the developed portion, is 0.655 acres. The WWTF upgrade includes replacing an outlet pipe to Francis Creek, which will impact 0.03 acres of Riverine wetland.

To offset the impacts to the wetlands, the City is proposing to construct 1.55 acres of compensatory wetland within the developed portion of the WWTF site located north of Port Kenyon Road (Figure 2 and Plan Sheets C1 through C11).

SITE DESCRIPTION

Current uses of properties bordering the proposed wetland mitigation site include agricultural and wastewater treatment (the existing WWTF). Port Kenyon Road is the southern boundary of the proposed wetland mitigation site. Francis Creek lies due north of the proposed mitigation site. Areas to the east and west of the proposed mitigation site include agricultural sites as well as some undeveloped parcels.

The headworks site is 0.74 acres. Currently the developed portion of the site, 0.085 acres, includes three buildings and a gravel access road (Figure 3). The remaining undeveloped portion of the site, which is to be mitigated for, resembles a spoils disposal site in which piles of wood debris, grass clippings, asphalt, and other debris materials have been placed within the project area. The undeveloped area is situated within flat to very gently sloping terrain. Soils are anthropogenic with a silt loam texture. A well-established herbaceous layer is distributed throughout a majority of the site. Portions of the wetland are dominated by upland species such as Orchard grass (*Danthonia glomeratus*), California brome (*Bromus carinatus*), Sow thistle (*Sonchus oleraceus*), English plantain (*Plantago major.*), Ryegrass (*Lolium multiflorum*), Velvet grass (*Holcus lanatus*), Bindweed (*Convolvulus arvensis*), Burclover (*Medicago polymorpha*), White clover (*Trifolium repens*), Teasel *Dipsacus fullonum*), Pineapple weed (*Chamomilla suaveolens*), Thistle (*Circium vulgare*), and Dandelion (*Taraxacum officinale*). Much of this is thought to result from the hydrology being altered from its natural state. Hydrophytic vegetation found on-site during the Wetland Delineation Study comprised Creeping buttercup (*Ranunculus repens*), Creeping bentgrass (*Argrostis stolonifera*),

Poison hemlock (*Conium maculatum*), Reed canary grass (*Phalaris arundinacea*), Cattail (*Typha latifolia*), Horsetail (*Equisetum telmateia* ssp. *braunii*), and Sheep sorrel (*Rumex acetosella*).

Francis Creek flows near the project area and drains into the Salt River south of the project area. Vegetation within the riparian zone of Francis Creek consists of mostly canopy and scrub shrub species. Species occurring within the canopy/scrub-shrub layer comprise Sitka willow (*Salix sitchensis*), Hooker willow (*Salix hookeriana*), and Red alder (*Alnus rubra*). Herbaceous species occurring within the riparian zone include Soft rush (*Juncus effusus*), Reed canary grass (*Phalaris arundinancea*), and Creeping bentgrass (*Agrostis stolonifera*).

SENSITIVE SPECIES

No special status species were detected within the project site. Several special status plant species have been recorded near the project area; however, none of these species were detected onsite. Howell's montia or its habitat has the greatest potential of being established within the project area. Southern Oregon/Northern California Coho Salmon, Northern California steelhead, Foothill yellow-legged frog, Black-capped chickadee, Yellow warbler or their habitat have a high potential for occurrence near the project area. Francis Creek and its riparian area provides suitable habitat for these species.

FUNCTIONS AND VALUES

The functions and values of the wetland were previously evaluated according to the U.S. Army Corps of Engineers (USACE) protocol (Adamus et al., 1987) as part of the Wetland Delineation. Based on the USACE's rating criteria, the undeveloped portion of the headworks parcel ranks low in function and value, being limited primarily by lack of connection with a natural water source and limited vegetation diversity.

The undeveloped area was further assessed using quantitative and qualitative methods discussed below.

FUNCTIONAL AND ECOLOGICAL ASSESSMENTS

INTRODUCTION

Although the City is proposing to create approximately 1.55 acres of wetland to offset the 0.655 of undeveloped area on the headworks site and 0.03 acres of Riverine wetland at the existing pipe outfall, the function of the existing undeveloped area and the proposed wetlands were evaluated in order to ensure that, at a minimum, the same function will occur within the proposed wetland. In order to provide a quantitative basis for assessing wetland impacts and proposed mitigation in terms of wetland function, Manhard Consulting used California Rapid Assessment Methodology (CRAM) to assess the ecological aspects of the existing wetland and a scaled back wetland functional assessment methodology of the Hydrogeomorphic Model (HGM). This methodology considers both direct and indirect impacts in regards to wetland function. This functional assessment methodology was developed to be used as the basis for quantitatively assessing potential losses in wetland function that would result from the proposed WWTF upgrade as well as the potential gain in wetland function that would result from the proposed mitigation measures.

HGM ASSESSMENT

The HGM Assessment methodology is an approach to wetland functional assessment that typically includes the following components:

1. Classification of wetlands into regional subclasses consistent with the HGM classification system,
2. Identification of wetland functions appropriate to each regional subclass,
3. Identification of variables affecting these functions,
4. Development of assessment models and indices,
5. Identification of reference wetlands, and
6. Development of application protocols.

The components of the HGM Assessment are consolidated into a regional guidebook for each regional subclass. The regional guidebooks are then used to conduct functional assessments for specific projects in each regional subclass. Since a regional guidebook is not available for this project site, wetland function and variables were assessed for the existing undeveloped portion of the headworks site, but the assessment model and indices, identification of reference wetlands, and development of application protocols were not completed.

HGM CLASSIFICATION

The HGM Classification of wetlands was designed to classify groups of wetlands that function similarly based on shared criteria, such as geomorphic setting, water source, and hydrodynamics. Geomorphic setting refers to the landscape location of a wetland. Water source refers to the dominant source of water for the wetland such as groundwater, precipitation from runoff, overbank flooding, and backwater flooding. Hydrodynamics refers to the direction in which water moves in, through, and out of a wetland in addition to the energy associated within that movement.

There are seven hydrogeomorphic classes of wetlands (Smith et al. 1995). Table 1 lists the HGM wetland class, their dominant water sources, and dominant hydrodynamics. Of the seven classes, a *depressional wetland* is most likely within the undeveloped portion of the headworks site.

Table 1. Hydrogeomorphic Classes.

HGM Class	Water Source	Hydrodynamics
Riverine	Overbank flow from channel	Unidirectional, horizontal
Depressional	*Return flow from groundwater and interflow*	*Vertical*
Slope	Return flow from groundwater and interflow	Unidirectional, horizontal

Mineral Soil Flats	Precipitation	Vertical
Organic Soil Flats	Precipitation	Vertical
Estuarine Fringe	Overbank flow from estuary	Bidirectional, horizontal
Lacustrine Fringe	Overbank flow from lake	Bidirectional, horizontal

DEFINITION OF FUNCTIONS AND VARIABLES

Depressional Wetland: Depressional wetlands are areas where runoff accumulates in topographical swales. Water either does not flow through the wetland or the flow is essentially unnoticeable. This type of wetland usually lacks the indicative plant community of vernal pools and is neither saline nor alkaline in areas such as playas where evaporation results in concentrations of salts and alkalis. Depressional wetlands exhibit a number of functions as varied as surface and subsurface water storage and interchange, nutrient cycling, organic carbon export, maintenance of plant communities and their faunal components including support for successional stages, and as corridors for biotic movement.

Surface Water Storage: Surface water storage is the facility of a wetland to absorb and contain soil moisture including saturation of the soil strata as well as inundation by shallow waters. Of course, the size of the area determines the volume of water retention as well as infiltration into adjacent portions of the basin.

A bevy of factors affect the quantities of surface water storage within depressional wetlands. Geologic features, soil textures, slope, etc., factor into infiltration including perching of the water table, lateral movements of water, and the nature of the sources.

Subsurface Water Storage and Interchange: Subsurface water storage and Interchange is the capacity of a wetland to store water below the soil surface. This permits the lateral movement of waters within the rhizosphere into upland sites that are alongside these particular sites.

The nature of soil horizons including chemistry, organic components, particle sizes and underlying geology within a depressional wetland as well as the adjacent uplands can dramatically influence the functional attributes of water storage and exchange. Alterations to the edaphotope can clearly impair the ability for these systems to perform this functional attribute.

Element and Compound Cycling: Element and compound cycling is the biological and physical process in which compounds convert from one form to another as part of global as well as local biogeochemical cycling functions. These interrelated processes provide nutrient sinks at a number of levels that help to stabilize or moderate the cycling of nutrients thereby limiting the release into the water and air thus assisting with the maintenance of downstream loading and good water quality.

The interplay of both physiologic and biologic variables underlies the ability of wetlands to perform this function, so any alteration to any single factor alters the ability of the wetland to provide this balance. Vegetation, microbes, soils, and organics absorb, transform, and temporarily store a variety of elements and compounds. Microbial activities are essential to the cycling of most nutrients and are sometimes the critical component in these nutrient cycles.

Organic Carbon Export: Organic Carbon Export is the amount of dissolved or particulate organic carbon that is moved off site from the wetland. The function enhances downstream food chains by increasing decomposition of organics and locking up the metals thus supporting the aquatic life downstream.

Export of organic carbon is predicated upon the quality and size of the upstream habitats since that biomass must mostly be produced from within the watershed as allocthononous and authochnonous

materials. The amount that can be exported depends upon watershed sources as well as the ability of water to convey those materials downstream.

Maintenance of Characteristic Plant Communities: Maintenance of Characteristic Plant Communities is the ability of wetlands to support and sustain endemic plant communities. As stated above, each regional wetland subclass is defined with respect to species composition, abundance, and structure. This helps maintain a healthy ecosystem and biodiversity within the drainage basin.

Soil profile, underlying parent material, colluvial materials, the integrity of the plant communities, the nature of the hydrology, and the degree of disturbance to those features of the wetland and adjacent upland sites all contribute mightily to the stability of the systems supported by the wetland.

Maintenance of Characteristic Faunal Communities: Maintenance of characteristic faunal communities is the capability of wetlands to support and sustain endemic faunal communities that, like the plant communities upon which they depend, are correlated with the regional wetland subclass. The animals are related to those subclasses with respect to species composition, abundance, and age structure. Vertebrate and invertebrate fauna are both considered within this particular assessment.

Soil profile and its integrity, integrity of the watershed, duration and depth of inundation, and degree of disturbance of the wetland and its adjacent uplands all have a profound effect on the faunal community that a wetland supports.

Faunal Habitat Interspersion and Connectivity: Faunal habitat interspersion and connectivity is the capability of a wetland to act as a conduit of interspersion and connectivity for vertebrates and invertebrates that are normally associated with wetlands. These sites provide pathways for effective migration from one portion of important habitat to other portions of important habitats.

EXISTING INFLUENCES ON FUNCTIONS AT THE HEADWORKS SITE

Characteristics and processes of the undeveloped area of the headworks site and surrounding landscape influence many functions of wetlands. Some of the common functions are water storage, nutrient cycling, and the maintenance of faunal and plant communities. The influence on functions is discussed below for the undeveloped area of the headworks site, which, based on onsite hydrology, fits the classification of a depressional wetland.

Water Storage: Wetlands are transitional habitats between terrestrial and open water ecosystems. Any changes or modifications to soils, vegetation, or hydrology result in other biotic and abiotic changes. Though wetlands are temporal in terms of geologic time, structural and functional attributes of wetlands can persist for many years.

The area in the undeveloped portion of the headworks site has been used as a waste spoils site for at least the past 30 years, in which piles of wood debris, grass clippings, asphalt grindings, and other debris materials have been placed on site and in turn has had a negative effect on the wetland hydrology. The water storage volume within the wetland has diminished in capacity due to the amount of material deposited within the headworks parcel. The greatest impact on surface water storage is alteration to the potential wetland outlet. The area has been hydrologically modified through the placement of fill material, but has not completely drained the area; therefore, the area has some capacity to perform this function.

Nutrient Cycling: Wetlands tend to cycle nutrients at high rates relative to other ecosystems. Nutrient cycling allows wetlands to maintain an adequate supply of nutrients through abiotic and biotic components. Biotic components of nutrient cycling consist of the uptake of nutrients by vegetation to develop and maintain plant growth in addition to the renewed uptake of nutrients from

decayed vegetation. On a related topic, the vegetation stabilizes soil and surface organics so export of materials is minimized. Abiotic components of the nutrient cycling involve the reduction and oxidation of elements and compounds. This is an important function because it allows wetlands to maintain a high level of net primary production. The lack of nutrient cycling causes wetland ecosystems to become depleted of nutrients, primary production, secondary production, and decomposition processes. Alterations that change the amount of living and decayed vegetation matter will directly affect the way in which a wetland can perform nutrient cycling.

The vegetation of the undeveloped portion of the headworks site is currently maintained through mowing. Also, plant waste materials are currently being deposited on-site. The area has the presence and characteristic of plant biomass and the presence of detritus and soil components that are needed for nutrients to be cycled within a wetland. Production and decomposition of plant material are interdependent in the nutrient cycling process. Nutrient processes related to the reduction of primary production and decomposition will lead to a low characteristic level of nutrient cycling. This function is decreased within the area during the majority of the year due to the excess of organic material being deposited on-site, but is not eliminated in its entirety.

Remove, Convert, and Sequester Elements, Compounds, and Particulates: Depressional wetlands can permanently remove or temporarily immobilize elements, compounds, and particulates that are imported from upland sources or that occur on-site. Elements include nitrogen, phosphorous, and potassium while compounds include herbicides and pesticides. Inorganic and organic particulates are physically immobilized. Removal is the permanent loss of elements and compounds through retention or atmosphere and sequestration is the short or long term immobilization of elements and compounds.

Elements and contaminants in surface and groundwater that come into contact with wetland soils or vegetation are removed through sedimentation or transformed into innocuous and biogeochemically inactive forms. Depressional wetlands that can adequately function to remove, convert, and sequester elements and compounds reduce the load of nutrients and pollutants in groundwater and any surface water leaving the depressional wetland. This results in better water quality and aquatic habitat in streams leaving the watershed.

Surrounding agricultural land uses affect the biotic and abiotic components within the undeveloped portion of the headworks site. This area receives the elements and compounds mainly through surface runoff and outlets to the surrounding agricultural land. This area still functions to remove, convert, and sequester elements and compounds that flow onto the site. At times this function is decreased since the surface runoff into and out of the headworks parcel only occurs during certain times of the year.

Maintain Habitat for Characteristic Plant Community: Maintain habitat for characteristic plant community is the capacity for a wetland to possess and maintain the environment necessary for characteristic plant communities to develop and respond to changing conditions. The ability to maintain a characteristic plant community is vital because of the intrinsic value of plant communities and their attributes and processes of wetlands that are influenced by the plant communities. Emergent macrophytes make up the majority of the biomass in primary productivity and subsequent loading in nutrient cycling. A major source of internal loading is macrophytic translocation. Structure and composition of plant communities within depressional wetlands can directly or indirectly influence floodwater retention, sediment retention, and surface-groundwater interaction.

Physical and biological factors play a role in determining the ability of a wetland to maintain characteristic plant communities. Climate, grazing, fire, and anthropogenic alterations all have an effect on plant communities within wetlands.

A number of factors have decreased the function within the undeveloped area of the headworks site. This area has been disturbed and is currently being managed by mowing. A number of invasive non-native species are currently established on-site. Human disturbances within the site include deposits of plant waste material, which has altered the on-site plant community.

Provides Wildlife Habitat: This function reflects the ability of an individual wetland to support native wildlife species during some portion of their life cycle. Wetlands are an important resource for migratory birds, particularly during spring migration. The use of wetlands by wildlife is influenced by structure and composition. Structure of a plant community has influences on seed production, invertebrate food for wildlife, and cover for nesting. Normally, the greater the diversity of plants will yield a greater diversity of wildlife species.

Disturbances and climate affect the structure and composition of plant communities. Natural climatic and disturbances that can occur within a wetland include flooding, drought, grazing, fire, and sedimentation. Hydrodynamics within the undeveloped portion of the headworks is variable due to existing precipitation patterns within the area. The headworks area lacks hydrology for the majority of the season due to the amount of material that has been deposited on-site, which in turn has decreased this function. Maintaining the area has also decreased this function in that there is very little structure within the site. Furthermore, the site is completely fenced, since it lies within the headworks parcel; therefore, most wildlife animals do not have access to inhabit the site.

CALIFORNIA RAPID ASSESSMENT METHODOLOGY

The CRAM is a broader wetland assessment that was developed based on Environmental Protection Agency's Level 1, 2, 3 Framework for wetland monitoring and assessments. This assessment was designed to evaluate the ecological condition of a wetland in terms of the wetlands ability to support characteristics of plants and animals. CRAM assessments include four attributes, which are landscape context, hydrology, physical structure, and biotic structure. This assessment also identifies key stressors that are or may be affecting the condition at the wetland. However, CRAM metrics and attributes can be related to wetland functions, values and beneficial uses, but are not directly measured by this assessment.

ASSESSMENT

During the assessment of the existing site, landscape context and buffer characteristics of the assessment area, hydrology, physical structure, and biological structure were assessed. The results of the assessment were interpreted relative to the best achievable conditions as incorporated into the CRAM scores. The CRAM score revealed the existing undeveloped portion of the headworks site is a low quality wetland that has a severely altered hydroperiod and that barely supports hydrophytic vegetation.

Buffer and Landscape Context: Four metrics were used to assess the buffer and landscape context attribute of the existing site to be mitigated for. These metrics include connectivity, percentage of the wetland perimeter that has a buffer, average width of the buffer, and condition of the buffer. Connectivity of the existing wetland lies within 500 meters of another aquatic resource; however, wildlife movement, besides birds, cannot easily move between the two aquatic resources due to the fence around the existing headworks site. The buffer surround the existing wetland at the headworks site is minimal to nonexistent due to the fact that the site is surrounded by agricultural land. The buffer is less than 25 percent of the assessment area perimeter and the average buffer width is less than 30 meters. The buffer condition is low quality since the soils are disrupted due to agricultural practices and a number of non-native invasive species exist within the agricultural field.

Hydrology: Hydrology includes the sources, quantities, and movements of water. Physical structure of a wetland is mainly determined by the magnitude, duration, and intensity of water movement with the wetland. The water source of the existing wetland is from precipitation and

stormwater runoff. The hydroperiod is characterized by natural patterns of inundation during storm events, but the drawdown time or drying is rapid. Additionally, the spoils material has been deposited on the site; therefore, the drawdown time deviates from natural conditions. The undeveloped portion of the headworks site is higher in elevation that the surrounding land; therefore, the hydrologic connectivity has lateral flow from the site to the surrounding land.

Physical Structure: Physical structure of a wetland consists of physical, chemical, and biological features that support habitat for biota. CRAM focuses on the physical conditions that indicate the capability of a wetland to support native flora and fauna. The physical patch richness within the wetland is less than 33 percent. Topographic complexity of a wetland includes different elevations with very few physical patch types. The bottom of the existing site has been altered due to materials that have been deposited on-site over time. There is little to no thatch, leaf litter, or fine debris that occurs naturally within the site. Unnatural leaf litter and organic matter have been deposited within the site. The biotic patch richness onsite is 25 percent and the vertical biotic structure supports less than 50 percent of two height classes. The site has almost no plan view interspersion and more than 50 percent of the plant species onsite are non-native, invasive species.

PROPOSED MITIGATION PLAN

INTRODUCTION

The proposed mitigation plans goal is to establish a mitigation wetland in which there will be no net loss in the overall aerial extent of wetlands disturbed as a result of the WWTF upgrade. From a functional standpoint, the mitigation wetland is also intended to compensate for the loss of function of the undeveloped portion of the headworks site and the Riverine area at the pipe outlet on Francis Creek. The proposed mitigation plan focuses on constructing the mitigated wetland onsite with adequate area to create a wetland.

PROPOSED MITIGATION AREA

The proposed creation of the wetland mitigation area will involve the manipulation of existing physical, chemical, and biological characteristics in order to establish the wetland. The creation of the wetland will establish a functioning wetland that did not previously exist. The goal of the created wetland is to establish a wetland that is similar to the impacted wetland in terms of their physical and biological characteristics. The created wetland will be a seasonal wetland.

Physical Attributes of Site

The wetland creation area will take place within the northern portion of the WWTF site. The proposed wetland mitigation area is currently a finishing pond and aeration pond within the WWTF. The proposed wetland will be constructed as a seasonal wetland with differing vegetation zones.

Past, Present, and Proposed Uses of All Adjacent Areas

The impact and mitigation areas lie within the Lower Eel River Watershed. Both the existing and proposed wetland areas lie within the WWTF project site. The site has and is currently being operated as part of the WWTF. Surrounding land use consists of agricultural land and riparian areas.

Mitigation Site Selection and Justification

The wetland mitigation area constructed within developed portion of the existing WWTF ponds in the northern parcel. This area (1.55 acres) will be graded to higher elevations (15.5 – 17.3) in order to achieve adequate hydrology. This wetland will be constructed as an emergent wetland. The emergent areas will vary in elevation in order to accommodate differing emergent vegetation. The proposed area will be planted with plugs and seeds that will be broadcast within the wetland bottom, wetland buffer, wetland riparian buffer, and maintained area. Trees and shrubs will be planted within the proposed wetland riparian buffer. Proposed hydrology will range from saturation within the upper 12 inches to inundation during heavy storm events. Soils are expected to develop a low chroma due to the reducing nature of saturated soils. The likelihood of success within the proposed wetland mitigation area is great since this area will receive additional hydrology from adjacent lands and storm events.

Timing of Mitigation

Since the mitigation area is within the existing finishing and aeration pond, construction cannot begin until the WWTF construction is completed and treatment is underway. Thus, the mitigation area will be constructed after the impacts will occur to the impacted area within the headworks parcel. Completion of the WWTF is anticipated around March 2011. As a result, construction of the wetland mitigation area is anticipated to commence in May 2011 and should be completed by the end of August 2011.

Proposed Function and Values

The proposed wetland area will exhibit more functions and values than the existing undeveloped portion of the headworks site. The existing site is degraded due to anthropogenic disturbances (dredge material deposits, maintaining the wetland, and plant material waste) that have occurred on-site; therefore, functions and values of the existing headworks site are minimal. The proposed wetland will exhibit the following functions and values:

1. Habitat characteristics such as species diversity, plant cover, species composition;
2. Hydrologic regime to support hydrophytic vegetation;
3. Topographic complexity that allows interflow between the wetland and adjacent uplands and riparian areas;
4. Biogeochemical processes that would normally occur within a wetland;
5. Vegetation cover to sufficiently stabilize soils;
6. A variety of habitats and food sources available throughout the year to support the wildlife that normally inhabits these areas;
7. Presence and characteristic of plant biomass and the presence of detritus and soil components that are needed for nutrients to be cycled within a wetland;
8. Physical structure of hydrology that minimizes gully flow and increases sheet flow so that water is retained in such duration as to allow percolation into soils and the water table to minimize downstream flooding as well as to contribute to the water needs of adjacent upland communities; and
9. To have a complement of plant species established that fosters the development of microbial communities to assist with nutrient cycling.

Site Preparation

A detailed plan was prepared for the construction of the wetland mitigation area.

Grading

All construction will be implemented using wide track, low ground pressure equipment or using other equipment that will reduce compaction within the mitigation wetland area. The specific grades are depicted in the included plan set, but elevations will range from 15.5 to 17.3. All grading elevations for the wetland mitigation area were compared to existing elevations within the undeveloped portion of the headworks site. Since the existing headworks site has been altered and spoils material has been deposited within the site, the proposed elevations within the mitigation area were lowered between 1 to 2 feet below the existing elevations of the undeveloped portion of the headworks site.

Soils

Currently, the existing soil profiles within the subject property are anthropogenic since the soils have been altered due to the past and present land use. The mitigation area consists of ponds that will be graded to higher elevations to create an on-site wetland. This will be done by filling the lagoon (finishing pond) with soils that will be used to pre-load the construction site (after pre-loading, the soil will be stockpiled for the mitigation site) and capping the remaining 2.5 feet with about 2.17 feet of local soil from the Salt River Restoration Ecosystem Project (SRREP) and 0.33 feet of topsoil. If soil from the SRREP is not available at the time of construction, topsoil will be used to cap the remaining 2.5 feet. The topsoil will provide the created wetland soils with increased soil moisture, water holding capacity, and P sorption index. Topsoil will be employed since only subsoils currently exist on-site and have low soil organic matter and high bulk density (D_b).

Proposed soil conditions within the mitigation area should develop a chroma of 2 (with mottles) or less. Prior to planting the mitigation area, the area will be tilled to a depth not less than three inches. Resulting soil should be a fine-grained homogenous mixture free of clumps, clods, stones that are larger than two inches, woody material, and all other debris. Soil preparation should result in an undulating surface with the intended high and depression areas. After soil preparation has been completed, a wetland consultant or biologist will evaluate the site prior to planting. Erosion and sedimentation control measures (as detailed on plan set) will be implemented throughout construction and post-construction. These measures will be inspected on a regular basis to ensure that the water quality within Francis Creek is not exacerbated by the construction of the proposed wetland.

Hydrology

The hydrology within the proposed mitigation wetland will be primarily from precipitation and surface water runoff from the catchment area surrounding the mitigation wetland. It is also anticipated that groundwater will be a secondary source of hydrology since groundwater within this area can fluctuate from less than 2 feet below the soil surface to 10 feet below the soil surface. Since the precipitation and surface runoff will be at an elevation above the water table, the water will move toward the water table. The outflow of water from this wetland will be evaporation from the water surface, transpiration form plants, and movement of water to the adjoining aquifer (Francis Creek). The proposed wetland will have an emergency outflow earthen structure that will allow water to enter and leave the wetland during large storm events when the water within Francis Creek overtops its banks. The elevation of the earthen outflow structure is set so that only a maximum of two inches of water will be standing within the wetland after a large storm event. It is anticipated that the two inches of water within the wetland will drawdown through infiltrating into the soils, evapotranspiration, and transpiration.

Vegetation

Vegetation within the mitigation area would be hydrophytic vegetation and be free of non-native, invasive species. It is proposed that a total of 1.55 acres will be classified as palustrine emergent. All species planted within the wetland areas will be native. The wetland bottom will be planted with plugs in addition to seeds being broadcast within the wetland. Species to be planted within the wetland bottom consist of fivefinger fern, water foxtail, showy milkweed, slough sedge, spike-rush, meadow barley, toad rush, softstem rush, small-fruited bulrush, and burreed. Plant species that will be planted within the wetland buffer will comprise elk-clover, showy milkweed, lady fern, leafy reed grass, Santa Barbara sedge, blue wild rye, toad rush, and grey rush. Vine maple, bigleaf maple, red alder, showy milkweed, leafy reed grass, Santa Barbara sedge, hawthorn, blue wild rye, Oregon ash, toad rush, grey rush, western chokeberry, and arroyo willow will be planted within the wetland riparian buffer, which will tie the wetland to the Francis Creek riparian buffer.

Wetland Bottom – Plugs and Seed Mix		
Scientific Name	**Common Name**	**Indicator**
Adiantum aleuticum	Fivefinger Fern	NA
Alopecurus geniculatus	Water foxtail	OBL
Asclepias speciosa	Showy Milkweed	FAC+
Carex obnupta	Slough Sedge	OBL
Eleocharis macrostachya	Spike-Rush	OBL
Hordeum branchyantherum	Meadow Barley	FACW
Juncus bufonius	Toad Rush	NA
Juncus effusus	Softstem Rush	FACW
Scirpus microcarpus	Small-Fruited Bulrush	OBL
Sparganium emersum	Burreed	NA

Wetland Buffer – Plugs and Seed Mix		
Scientific Name	**Common Name**	**Indicator**
Aralia californica	Elk-Clover	FAC+
Asclepias speciosa	Showy Milkweed	FAC+
Athyrium filix-femina	Lady Fern	FAC
Calamagrostis foliosa	Leafy Reed Grass	NA
Carex barbarae	Santa Barbara Sedge	FAC+
Elymus glaucus	Blue Wild Rye	FACU
Juncus bufonius	Toad Rush	NA
Juncus patens	Grey Rush	FACW

Wetland Riparian Buffer – Trees			
Scientific Name	Common Name	Indicator	Quantity
Acer circinnatum	Vine Maple	FAC-	4
Acer macrophyllum	Bigleaf Maple	FACU	2
Alnus rubra	Red Alder	FAC	3
Crataegus douglasii	Hawthorn	FAC	4
Fraxinus latifolia	Oregon Ash	FACW	5
Prunus virginiana	Western Chokeberry	FACU	2
Salix lasiolepis	Arroyo Willow	FACW	3

Wetland Riparian Buffer – Plugs and Seed Mix		
Scientific Name	Common Name	Indicator
Asclepias speciosa	Showy Milkweed	FAC+
Calamagrostis foliosa	Leafy Reed Grass	NA
Carex barbarae	Santa Barbara Sedge	FAC+
Elymus glaucus	Blue Wild Rye	FACU
Juncus bufonius	Toad Rush	NA
Juncus patens	Grey Rush	FACW

All species will be native and the trees and seed mixes will be purchased from a local nursery specializing in wetland plants. The proposed percent coverage is minimally 85 percent. The vertical distribution of tree canopies, such as in the proposed wetland riparian buffer, is an attribute of forest structure that is important for managing forest resources as diverse as wildlife, hydrologic response, aesthetics, tree growth and yield, fire hazard, and susceptibility to insects or disease. The arrangement and vertical distribution of leaf area on tree crowns changes during stand development because of competition, tree mortality, the initiation of new understory trees, and the growth of previously suppressed trees. In addition, herbivory, spatial heterogeneity, environmental factors, and disturbance contribute to the complex vertical and horizontal structural patterns that develop in forest canopies. Structural changes that result in differences in the amount and distribution of leaf area (and cover) in stands affect stand functions such as photosynthesis and respiration, tree growth, suitability for wildlife, and understory plant diversity.

The stratification patterns of individual overstory trees affect the canopy gap structure, which in turn determines the distribution of light and precipitation received by subordinate trees and understory plants. Both the prevalence of canopy openings and canopy type has been correlated with different degrees of understory development in stands of similar ages. Therefore, the gap structure of overstory canopies can be expected to affect the development of understory diversity and biodiversity in general.

Volunteer vegetation is more likely to occur within the wetland mitigation area since it will be constructed near Francis Creek. Vegetation within this area is currently native in which the seed bank will be distributed within the adjacent areas through wind, animals, etc. Temporary grass will be used to stabilize the mitigation areas while the native, permanent grasses and sedges become established. If the temporary grasses become weedy then the temporary grasses will hand pulled to remove them from the wetland mitigation areas.

Seeding within the wetland mitigation area and buffers shall be completed according to the following specifications. Seeding should be completed using a native seed drill or broadcast by a hand spreader. Care should be taken to distribute seeds evenly and seeded communities should overlap

to ensure good establishment of all plant communities. Following seeding, all areas should be lightly raked to ensure good seed to soil contact and then shall be watered with a fine spray. Upon completion of weeding, raking, and watering, all areas extending upward from the normal water level should be covered with an erosion control blanket.

Plants should be installed in soil that is at least saturated but in water no deeper than two inches. Plugs should be done in natural groupings, spaced on five-foot centers and interspersed evenly throughout the mitigation area.

Other/Construction Methods
"No Trespassing" signs will be placed at the construction entrance and exit to keep the site clear of trespassers. Once grading is completed, the mitigation area will be separated from the WWTF in which the fence that will be removed in order to tie the wetland to the riparian area along Francis Creek will be placed along the backside of the eastern wetland buffer. "Permanent Wetland Management" signs will be placed around the wetland mitigation area once the site has been stabilized with vegetation.

Wetland Buffer
A twenty-foot wetland buffer will be created along the boundary of the wetland mitigation site. The eastern, western, and southern buffer will be planted with emergent plants while the northern buffer will be planted with a mixture of trees, shrubs, and herbs. The buffer will help to filter stormwater runoff flowing into the wetland in addition to tying the wetland into the existing riparian habitat along Francis Creek. The buffer around the mitigation area will also provide additional habitat for wildlife species.

Irrigation Plan
A temporary irrigation system will be installed during construction of the wetland mitigation area in order to provide supplemental water in order to help establish the native plant materials during the early portion of the five-year maintenance and monitoring period. Spray heads will be installed within the wetland buffer to distribute the water across the wetland mitigation area. The purpose of the temporary irrigation system is to facilitate the establishment of vegetation within the mitigation area during the first two years. It is anticipated that the temporary irrigation system will not be used past year 2 of the maintenance and monitoring period.

Schedule
As discussed above, the construction of the wetland mitigation areas will commence in May 2011, which is after the upgrades to the WWTF have been completed. Monitoring will begin once a full growing season has elapsed after installation of the last planted material.

Cost
Factors that were considered in preparing the cost estimate included site preparation, grading, plant materials, plant installation, erosion and sedimentation control measures, and irrigation system. The cost of the implementation of the wetland mitigation area was calculated to be approximately $255,000 to $365,000. The lower cost is if fill material can be obtained from the SRREP. The cost of maintenance and monitoring of the site will be calculated during prior to construction.

Factors for Final Success Criteria

Percent Vegetation
The mitigation area will be vegetated at least seventy (70) percent by hydrophytic, native, non-invasive species and no more than ten (10) percent of the site will be open water, bare ground, or a combination of the two. The seventy percent coverage includes the aerial cover for all strata. The wetland buffer will be vegetated at least seventy percent of facultative, native, non-invasive species and no more than ten percent of the site will be bare ground.

Plant Species Diversity

Diversity of the plant community within the mitigation areas will be measured to determine relative abundance and total number of species observed within the mitigation area for each monitoring period. The diversity will be calculated by an accepted diversity index, which will be clearly defined and justified within the monitoring report. The calculated index score will fall within the accepted range for the diversity index and the diversity index will not be lower than that of the impact site. Otherwise, the mitigation area will be deemed unsuccessful, presuming the site is in-kind mitigation. The diversity index scores will range from being stable to increasing in the last two years before final acceptance of the mitigation is to be granted.

Realization of Targeted Vegetative Communities

A comparison of the targeted acreage and the realized acreage of the communities and habitats will be provided. If there are differences greater than fifteen (15) to twenty (20) percent then corrective measures will need to be taken. Some of the corrective measures will include alteration of hydrology, replanting, etc.

Soils and Hydrology

The soils will support the targeted vegetation and will develop a chroma of two or less. Soil sampling will be conducted concurrently with the hydrology and vegetation monitoring. A soil sample will be taken at each established point at a minimum depth of 20 inches. The soil profile will be recorded, which includes horizon; matrix color; and redox features of size, color, and abundance, as well as textural characteristics.

All of the mitigation areas will demonstrate sufficient evidence of wetland hydrology. Primary indicators shall be evident during the wetland delineation. Appropriate hydrology for the targeted communities and habitats will be demonstrated in more years than not. Failure to meet both hydrology conditions will result in the undertaking of corrective measures.

Exotic and Undesirable Plants

Invasive and undesirable plants will not be present within the mitigation site. If any invasive or undesirable plants are found within the mitigation area then those plants will be removed and a management plan will be created to prevent the re-introduction of the invasive or undesirable plants.

SITE PROTECTION AND MAINTENANCE

REPSONSIBLE PARTIES

The City of Ferndale is the owner and the responsible party for managing and ensuring that maintenance of the wetland area has been completed. The City of will ensure that the maintenance contractor has at least five years experience in the maintenance of native habitat and revegetation. The maintenance contractor will be responsible for providing maintenance of the irrigation system, control of the non-native plant species, removal of trash, and installation of replacement plants, which will all be under the direction of the City.

LONG TERM PROTECTION AND MANAGEMENT PLAN

The wetland mitigation area will be placed within a Declaration of Land Use Restriction to ensure that the wetland mitigation area is protected in perpetuity.

MAINTENANCE PLAN AND SCHEDULE

The five-year maintenance plan will take effect once a full growing season has elapsed from installation of the last planted material. The following are guidelines for the maintenance plan activities.

Irrigation Methods

The temporary irrigation system will be maintained throughout the five-year maintenance period so that supplemental water is available to the mitigation if needed. The supplemental water to the mitigation area will be discontinued after the second year in order to determine if "natural" hydrologic conditions are sufficient to support the mitigation habitat. Water will only be applied at the discretion of the project biologist and the irrigation schedule will depend on weather patterns. Watering of the site is intended to only occur during late spring and summer months.

Plant Replacement

Variations in site conditions will result in a mosaic of vegetation growth that is similar to undisturbed habitats. Native plant materials will be maintained on the site to minimize the size and distribution of bare areas. Barren areas in the mitigation site where plant growth is expected will be replanted under the direction of the project biologist with appropriate native species to create the desired vegetation cover.

Weeding

Weed control will continue throughout the five-year maintenance period. Hand pulling or cutting will be performed by maintenance workers familiar with and trained to distinguish weeds from native species. During the five-year maintenance period, weeding will be performed four times per year (or more as determined by the project biologist) to prevent weeds from producing seeds and to control weed competition during the establishment period of native plants. Two or three of these site visits to control weeds will be made in the spring while the others will be done in the summer. It is anticipated that the weeds will be killed or removed before they set seeds.

Vegetation Clearing and Trash Removal

Pruning of any native vegetation or removal of dead wood and leaf litter will not be allowed in the revegetated areas. Trash will be removed from the site by hand on an as-needed basis for the duration of the five-year maintenance period. Trash will consist of all man-made materials, equipment, or debris left within the restoration area that is not serving a function related to revegetation.

Erosion Control

The mitigation area will be seeded with a permanent seed mix in addition to a temporary seed mix of grasses. Plugs will also be installed within the mitigation area. Silt fences will be installed in areas at

the mitigation site in which water may flow too rapidly in order to protect adjacent lands from sediments. Erosion control matting will be installed on all slopes after the site has been seeded.

Schedule

The general five-year maintenance schedule is presented below. This schedule will be modified, if necessary, by the project biologist to address specific issues that may arise in any given year of the maintenance period.

Tasks	Year 1	Year 2	Year 3	Year 4	Year 5
Weeding	4 times	4 times	4 times	4 times	4 times
Trash Removal	As needed	As needed	As needed	As needed	As needed
Irrigation Maintenance	Monthly	Monthly	Quarterly	Quarterly	Quarterly
Plant Replacement	As needed	As needed	As needed	As needed	As needed
Erosion Control	As needed	As needed	As needed	As needed	As needed

MONITORING PLAN

Monitoring is a basic requirement for all mitigation plans and is used to determine if and when a compensatory mitigation site has achieved the proposed yearly and final success criteria. Monitoring also enables the assessment of the mitigation and identifies when corrective measures need to be implemented. A project biologist will conduct regular site visits to evaluate the development of the mitigation habitat. Annual reports will be written that describe the results of the data collected during each year and how the mitigation effort is progressing towards the success criteria established.

RESPONSIBLE PARTIES

The City will be responsible for ensuring that the monitoring takes place each year. The project biologist will be a qualified biologist that has a minimum of five years experience related to wetland mitigation efforts. This person will be familiar with the ecology of native plants being installed and have a general knowledge of the biology of these species. The biologist will also have experience in the monitoring of native habitat revegetation, including qualitative and quantitative assessments of the site and writing annual monitoring reports.

The biologist will be responsible for ensuring that the mitigation plan is implemented as approved. This person will monitor all stages of the implementation of the plan from site preparation to plant installation and conduct the qualitative and quantitative monitoring required during the five-year maintenance and monitoring period. The biologist will also be responsible for coordination with the landscape contractor regarding on-site maintenance issues, including maintenance of the temporary irrigation system, control of the non-native species, replacement plantings, and general site maintenance.

PERFORMANCE STANDARDS

Final success criteria are proposed below. Fulfillment of these criteria will indicate that the mitigation site is progressing towards the habitat type, functions, and values that constitute the long-term goals of this mitigation. Final success will be considered complete when the mitigation site has reached the mitigation goals after a minimum of three consecutive years and after all human support has ceased. Human support includes irrigation, replanting, rodent control, and invasive species control.

The mitigation area will be monitored for at least five years following the completion of the installation of all plants. Each year of the monitoring period, the mitigation site will be assessed using standard success criteria below. Standard success criteria are based on measurements of vegetation cover, species composition, and species diversity. Final goals are used to certify the acceptance of the mitigation or the need for contingency measures. Depending on the monitoring results, monitoring may extend beyond the initial five-year period.

Year	Native Vegetation Cover	Species Composition	Species Diversity
1	—	95% Native	—
2	50%	95% Native	100% Target Species
3	75%	95% Native	100% Target Species
4	80%	95% Native	100% Target Species
5	90%	95% Native	100% Target Species

The success of the wetland mitigation will be determined using criteria based on general site characteristics and on the functional condition of the mitigation areas. General site conditions, such as diversity of native hydrophytic vegetation, plant cover, wildlife usage, and presence of wetland indicators will be evaluated at the proposed mitigation site.

REQUIRED MONITORING

Monitoring will begin once a full growing season has elapsed from installation of the last planted material. Permanent transect plots and a plant inventory will be conducted during each monitoring event. After the first full growing season, monitoring events for vegetation will take place in April. Hydrology will be monitored during Year 1 and Year 2 in April.

Qualitative Monitoring

Qualitative monitoring will involve periodic site visits to evaluate the condition of the mitigation site, conduct wildlife surveys, and to identify any problems with the development of the habitat and to determine if remedial measures are warranted. Plant health will be evaluated in addition to identifying and correcting any problems as necessary for ensuring successful vegetation establishment. Transplant vigor and non-native plant encroachment will also be evaluated. A list of plant and wildlife species that are observed within the mitigation site will be compiled during each qualitative monitoring visit. Additionally, a list of plant species present within the wetland and a description of wildlife use will also be included within each annual report.

The development of hydrologic and biogeochemical functions at the mitigation site will be addressed as well. Hydrologic functions such as hydrologic regime and topographic complexity will be assessed during each monitoring event. Biogeochemical processes will also be assessed through observations of the development of vegetation cover and leaf litter, debris, and organic detritus occurring within the site.

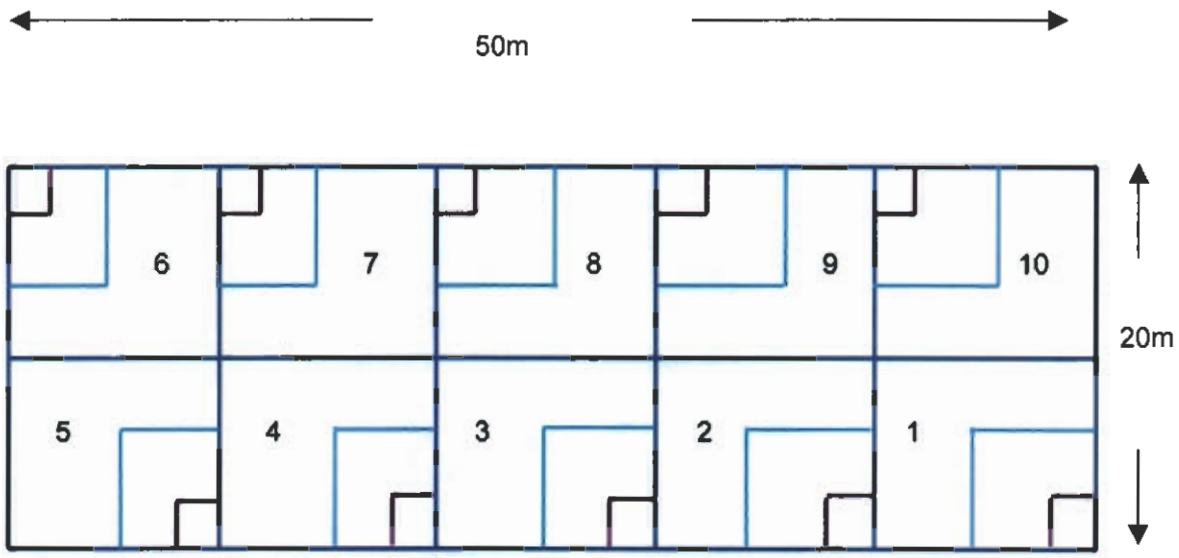
Quantitative Monitoring

Quantitative monitoring will be performed to measure the development of vegetation in the mitigation area and to document that the revegetation areas achieve the success criteria as stated in the performance standards section.

At the beginning of year two, permanent vegetation sampling stations will be established within the mitigation site to measure the year-to-year changes in herb stratum, species composition, and species diversity. Sampling will be conducted in the spring of each year of monitoring to ensure that the maximum species diversity and cover is recorded.

Vegetation

Permanent transect plots [1/10th hectare (20m × 50m) plot] will be established within the first growing season of the trees being planted. A 20m × 50m plot will be subdivided into ten 10m × 10m subplots (see diagram below). Each 10m × 10m subplot includes a 5m × 5m and a 1m × 1m subplot. Since this wetland will be an emergent wetland, only 1m × 1m subplots will be established. The plots will be used to examine survivability of vegetation, absolute value, relative abundance, etc. within the wetland mitigation area. Two plots will be established randomly within the wetland. Corner posts (rebar with ½ inch PVC cover) will be used to establish the permanent corners of the transect plots. PVC will be used to construct a 1m-square that will be used during the monitoring events to help determine absolute value (percent coverage) and cover class. All corner posts will be removed at the end of the monitoring period. Photo documentation will be taken of each plot during each monitoring event. All photos will be taken in the same direction every year, fit on 8.5" X 11" paper, dated, and will be clearly labeled with the direction from which the photo was taken. Photos will be submitted with the "Summary Data" portion of the monitoring report.



Vegetation within the 1/10th hectare plots will be monitored every April for five years within the emergent wetland. During each monitoring period, notes on the vegetation survival and growth (biomass measures) will be recorded. Also, all planted material will be checked during each monitoring event to ensure that there are no problems due to insects, or too much or too little water. If plants have died, it will be noted and the probable cause of mortality will be determined and corrected if possible. Competition from invasive or weedy species will also be noted if it is likely to suppress the new plantings. At the end of the monitoring period, at least 90 percent of the installed plant material should be healthy and growing well. If not, then the cause of die-off will be determined and subsequent replanting will take place. Vegetation will be replaced after the first year on an as-need basis if excessive mortality occurs (approximately 30 percent).

Hydrology and Soils

Hydrology will be taken during Years 1 and 2 in the month of April. The purpose of this monitoring is to ensure that sufficient wetland hydrology exists to support the desired species. Sampling will follow the methodology and criteria in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. A test pit will be dug to examine hydrology within each wetland mitigation area in which hydrology (saturation or inundation) and primary indicators will be recorded.

Soil sampling will also be conducted concurrent with the hydrology monitoring. Soil samples will be taken within each wetland mitigation area at an established point. The established point will be within the permanent transect plots. Soil sample will be taken at a minimum depth of twenty (20) inches and will yield a soil profile. The soil profile will consist of horizons, chroma, and redox features (size, color, and abundance) and will be recorded.

Acreage

Slightly more acreage is being created than the 2:1 mitigation for the headworks site and the 4:1 mitigation for the pipe replacement. Approximately 1.55 acres of wetland will be created and 1.43 acres will be required to have the features of a wetland, such as hydrology, hydrophytic vegetation, and hydric soils at the end of the monitoring period.

ANNUAL REPORTS

Monitoring reports will be provided that summarize the assessment of both the attainment of the yearly target criteria and progress toward the final success criteria. Reports will be submitted to the CCC no later than January 1 of the following year. All field data sheets will be copied and sent in with the monitoring reports. The report will also include qualitative and quantitative surveys, data summary analysis, performance standards, remedial actions performed or needed, and recommendations for improving the mitigation site. Photo documentation will also be submitted. Each annual report will compare the finding of the current year with those in previous years. Additionally, all vegetation data submitted will include scientific name, common name, and wetland indicator status.

Any significant issue or contingency that arises on the site such as plant survival issues or flooding will be reported in writing to the CCC within two weeks from the date of incident. Accompanying the report will be a plan for remediation and an implementation schedule and monitoring schedule.

At the end of the fifth year, a final annual report will be submitted to the CCC. The report will make a determination of whether the requirements of the mitigation plan have been achieved. The annual reports will follow the format outlined below.

Project Overview

The project overview section will include the following information:

1. Name and contact information of permittee and consultant,
2. Name of party responsible for conducting the monitoring and the dates the inspection was conducted,
3. A summary paragraph defining the purpose of the approved project, acreage and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the aquatic impacts,
4. Written description on the location and any identifiable landmarks of the compensatory mitigation project including information to locate the site perimeters,
5. Directions to the mitigation site,
6. Dates compensatory mitigation commenced and was completed,
7. Written statement on whether the performance standards are being met,
8. Dates of any recent corrective or maintenance activities conducted since the previous report submission, and
9. Specific recommendations for any additional corrective or remedial actions.

Requirements

The monitoring requirements and performance standards will be listed as specified within the approved mitigation plan and special conditions of the permit. Evaluation of whether the compensatory mitigation project site is successfully achieving the approved performance standards or trending towards success will be evaluated and discussed.

Summary Data

The summary data will be provided in order to substantiate the success and potential challenges associated with the compensatory mitigation project. Photo documentation will be provided to support the findings and recommendations referenced in the monitoring report and to assist the CCC in assessing whether the compensatory mitigation project is successful for the monitoring period. All photos will be submitted on 8.5"X11" paper which will also include date the pictures were taken and labeled with the direction from which the photos were taken. Photo sites will also be identified on the maps.

Maps

Maps will be provided to depict the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and other features pertinent to the mitigation plan. Additionally, the maps will clearly

delineate the mitigation site perimeters, which will help assist the CCC in locating the mitigation areas during the subsequent site inspections. Each map will be printed on 8.5"X11" paper with a legend and location of photos submitted.

Conclusion

A general statement will include a description of the conditions of the compensatory mitigation project. A brief explanation of the difficulties and potential remedial actions proposed by the permittee will be give if the performance standards are not being met. A timetable will also be submitted.

ADAPTIVE MANAGEMENT PLAN

The Adaptive Management Plan will identify potential challenges and remedial measures. In the event that the mitigation effort fails to achieve the success criteria outline in the monitoring plan then contingency measures will be considered in order to aid in the resolution of the issues that may be causing the habitat to not establish at the mitigation site.

INITIATING CONTINGENCY PROCEDURES

If performance criteria are not achieve at the end of the fifth year of the monitoring and maintenance period then the City will consult with CCC to determine whether the mitigation effort is acceptable as is, or if contingency measures are necessary. The City understands that failure of any significant portion of the mitigation area may result in a requirement to replace or revegetate that portion of the site.

IDENTIFICATION OF POTENTIAL CHALLENGES AND REMEDIAL MEASURES

Potential challenges to the mitigation plan can occur. Some potential challenges would include flooding, drought, invasive species, seriously degraded conditions, adjacent property problems, etc.

Invasive Species Identification and Eradication

Hand pulling or cutting is the preferred method for controlling isolated occurrences of non-native species. A qualified biologist will identify all invasive species. If any of the invasive or undesirable plants are found within the mitigation areas then those plants will be removed through hand pulling.

Excessive Mortality

Vegetation within the wetland mitigation areas will be replanted if excessive mortality occurs within these areas. Also, the cause of excessive mortality will be investigated before the vegetation is replanted to prevent excessive mortality from occurring again. If the soil composition is causing plant mortality, then either the soil composition will be altered or different selection of vegetation will be planted within this area. If too much water is within the mitigation areas then the earthen outlet structure will be regraded to lower elevation to prevent flooding. If too little water is within the mitigation area then the earthen outlet structure will be raised to allow for more water to be retained within the wetland.

If the vegetation is subjected to prolonged high water levels or drought before the plants are fully established, then the plants may need to be replanted since the likelihood of the plant material surviving these conditions has been reduced.

FINANCIAL ASSURANCES

The City will be responsible for the funding of any remedial or contingency measures required to achieve the success of the mitigation effort. These measures may include funding for replacement plants, locating a new mitigation site, implementation of a new mitigation plan, and additional maintenance and monitoring.

REFERENCES

Adamus, P.R. and L.T. Stockwell. 1983. A method for wetland functional value assessment. U.S. Department of Transportation, Federal Highway Administration. Volumes I and II. Report numbers FHWA-IP82023 and 24.

Smith D.R., Ammann, A., Bartoldus, C., and Brinson, M.M. 1995. An approach for assessing wetland functions using hydrogeomorphic classification reference wetlands, and functional indices. Technical Report WRP-DE-9. U.S. Army Engineer Waterways Experiment Stations, Vicksburg, MS.

Manhard Consulting, Inc. 2009. Wetland Delineation Report. Prepared for the Ferndale Wastewater Treatment Facility, Ferndale, California.

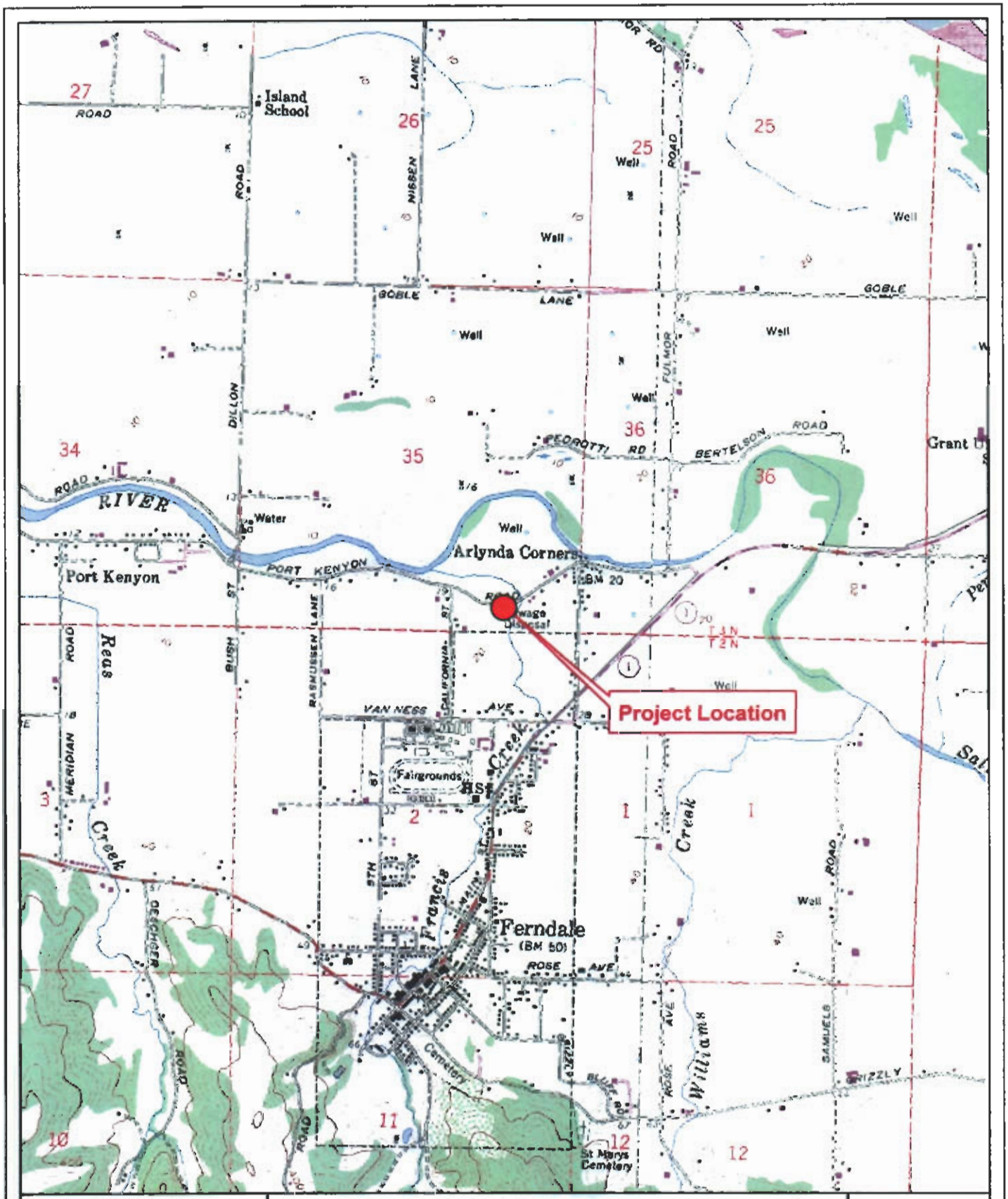


FIGURE 1:
SITE LOCATION MAP

Ferndale Waste Water Treatment Facility
Ferndale, Humboldt Co., CA

Center of Project: 124 15' 34" W, 40 35' 34" N

August 2009

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FIGURE 2:
AERIAL MAP

Ferndale Waste Water
Treatment Facility
Ferndale, Humboldt Co., CA

Center of Project: 124 15' 34" W, 40 35' 34" N

0 150 300 600 Feet

N

August 2009

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Headworks Parcel
APN 100-162-20

Total Developed Area = 3,721 square feet or 0.085 Acres
Total Parcel Size = 0.74 Acres
Total Undeveloped Area = 0.655 Acres

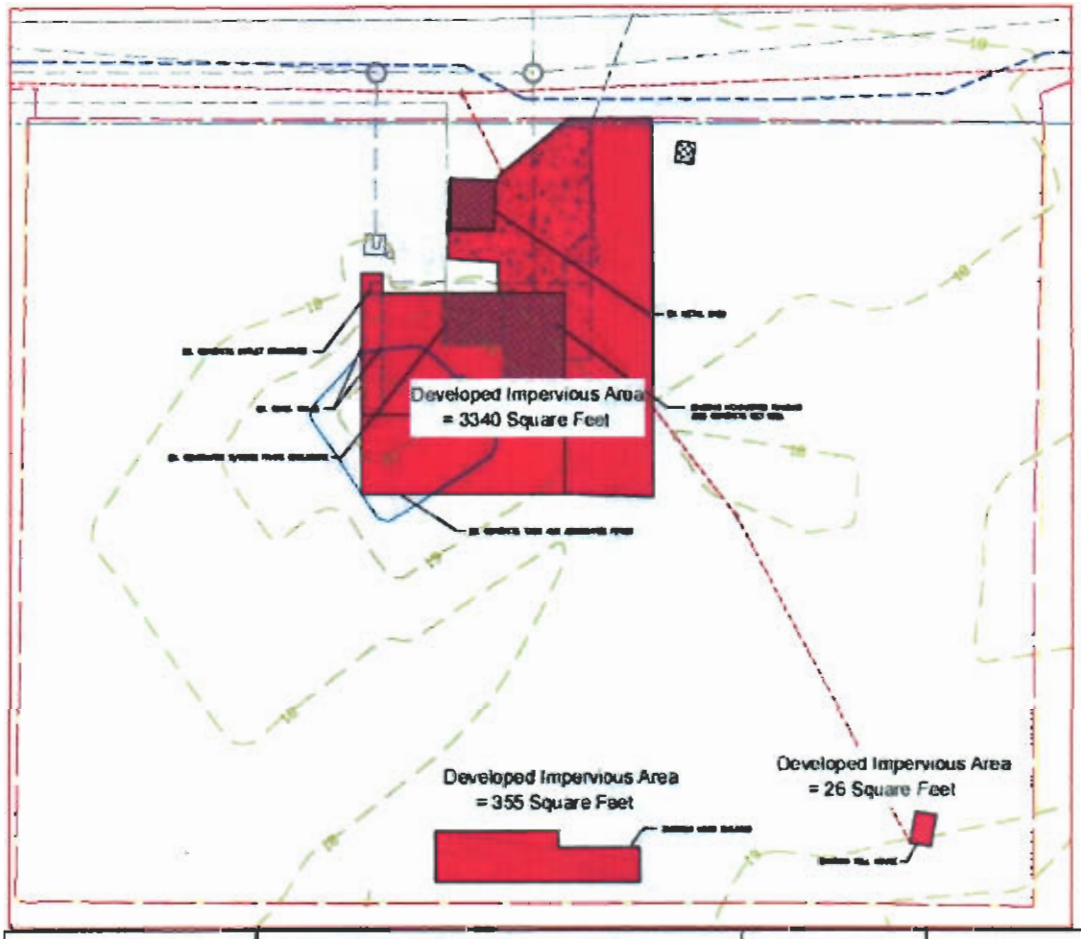


FIGURE 3: UNDEVELOPED AREA OF HEADWORKS SITE Ferndale Waste Water Treatment Facility Ferndale, Humboldt Co., CA	Center of Project: 124 15' 34" W, 40 35' 34" N Not to Scale	November 2009 N	Manhard CONSULTING

Final Design Plans
for

FERNDALE WASTEWATER TREATMENT PLANT
WETLAND MITIGATION PLAN

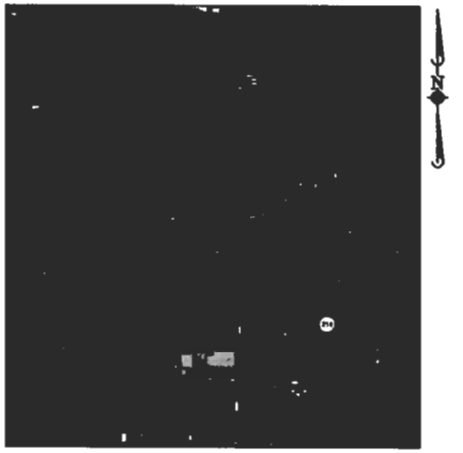
City of Ferndale, California

STANDARD SYMBOLS

EXISTING

PROPOSED

ABBREVIATIONS



LOCATION MAP

N.T.S.

INDEX OF SHEETS

Manhard
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Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

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HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT – (707) 445-7491
HUMBOLDT COUNTY PUBLIC WORKS ENCROACHMENT PERMITS – (707) 445-7205
DEL ORO WATER COMPANY – (707) 786-4599
PACIFIC GAS & ELECTRIC COMPANY – (800) 468-4743
CITY OF FERNDALE POLICE DEPARTMENT – (707) 786-4625
SUDDENLINK CABLE SERVICE – (877) 784-8724

BENCHMARK NOTES:

EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY "SPENCER ENGINEERING" ON 10-20-2000. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.

CITY OF FERNDALE, CALIFORNIA
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FERNDALE, CA 95536
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WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
TITLE SHEET

SHEET C1-11

WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
EXISTING CONDITIONS
Manhard CONSULTING LTD
C2-11
GRAPHIC SCALE
HEADWORKS SITE
EXISTING AERATION POND
FRANCIS CREEK
EXISTING TREE LINE
EXISTING FENCE TO BE REMOVED
EXISTING TREATMENT PLANT STRUCTURES
EXISTING FENCE
PORT KENTON ROAD
CALIFORNIA STREET
EXISTING CHLORINE CONTACT BASIN

WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
GRADING PLAN
Manhard CONSULTING LTD
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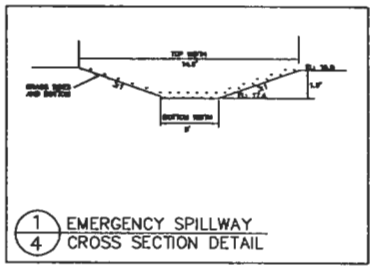
GRAPHIC SCALE
PROPOSED OVERFLOW POND
PROPOSED MAINTAINED AREA
PROPOSED FENCE
TIE INTO EX. CHANNEL BANK
EMERGENCY SPILLWAY
FRANKS CREEK
EXISTING FENCE TO BE REMOVED
PORT KENYON ROAD
CALIFORNIA STREET
PROPOSED HEADWORKS BUILDING
NOTES:



1/4 EMERGENCY SPILLWAY CROSS SECTION DETAIL

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED CITY AND/OR COUNTY SPECIFICATIONS AND STANDARD DETAILS.
2. WORK AND MATERIALS NOT IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS IS TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY IF THERE ARE ANY DISCREPANCIES ON THESE PLANS THAT COME TO HIS ATTENTION PRIOR TO OR DURING CONSTRUCTION.
4. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.
5. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS AND QUANTITIES, IF ANY. NO CLAIM SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.
6. CONTRACTOR WILL NOT BEGIN CONSTRUCTION UNLESS ALL NECESSARY APPROVALS ARE OBTAINED.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL APPLICABLE AGENCIES TO LOCATE UTILITIES PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION.
10. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND AND OVERHEAD OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA, HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY ALL GOVERNMENTAL AND UTILITY COMPANIES, PRIOR TO ANY EXCAVATION, TO VERIFY THE PRECISE HORIZONTAL AND VERTICAL LOCATION OF THEIR UTILITIES.
11. LOCATIONS OF UTILITIES SHOWN ON THIS PLAN ARE BASED ON INFORMATION SUPPLIED TO THE ENGINEER BY UTILITY COMPANIES. NO GUARANTEE ON LOCATIONS OR ACCURACY IS IMPLIED OR GIVEN.
12. ALL CONDUITS (I.E. BOX CULVERTS, REINFORCED CONCRETE PIPE, CAST-IN-PLACE PIPE, HDPE, AND/OR CORRUGATED METAL PIPE) SHOWN ON THESE PLANS ARE DESIGNED FOR STANDARD HIGHWAY LOADING. THE STANDARD MINIMUM COVER REQUIREMENTS, AS ESTABLISHED BY THE CONDUIT MANUFACTURER, MAY NOT ALWAYS BE SUFFICIENT FOR LOADING CONDITIONS IMPOSED BY CONSTRUCTION ACTIVITY. IF CONSTRUCTION EQUIPMENT WILL BE DRIVEN CLOSE TO OR OVER THE BURIED CONDUIT, THE CONTRACTOR SHALL PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE CONDUIT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ANALYZE AND CHECK THE ADEQUACY OF THE ADDITIONAL COVER REQUIREMENTS, ASSOCIATED WITH LOADING CONDITIONS IMPOSED BY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL ADEQUATELY PROTECT AND MAINTAIN ALL EXISTING UTILITIES.
13. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, PIPES, PROTECTIVE BERMS OR OTHER MEASURES DESIGNED TO PROTECT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO ANY STRUCTURE BEING BUILT.
14. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO THE GEPD'S REQUIREMENTS FOR AN N.P.D.E.S. PERMIT.
15. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNOLOGIES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING ALL STAKES AND CONTROL SET BY THE DEVELOPER'S SURVEYOR, AND SHALL TAKE STEPS NECESSARY TO INSURE THAT THE STAKES AND CONTROL ARE NOT DISTURBED OR TAMPERED WITH. IF STAKES SET BY THE DEVELOPER'S SURVEYOR ARE DISTURBED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST INCURRED TO RESTAKE.
17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF ALL ABANDONED (RETIRED) UTILITIES.
18. THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST THE OWNER/DEVELOPER OR THE ENGINEER/SURVEYOR REGARDING ANY ALLEGED INACCURACY OF CONSTRUCTION STAKES SET BY THE ENGINEER/SURVEYOR UNLESS ALL SURVEY STAKES SET BY THE ENGINEER/SURVEYOR ARE MAINTAINED INTACT AND CAN BE VERIFIED AS TO THEIR ORIGIN. IF, IN THE OPINION OF THE ENGINEER/SURVEYOR, THE STAKES ARE NOT MAINTAINED INTACT AND CANNOT BE VERIFIED AS TO THEIR ORIGIN, ANY REMEDIAL WORK REQUIRED TO CORRECT ANY ITEM OR IMPROPER CONSTRUCTION WORK IN THIS DEVELOPMENT SHALL BE PERFORMED AT THE SOLE EXPENSE OF THE RESPONSIBLE CONTRACTOR OR SUBCONTRACTOR.
19. THE OWNER/DEVELOPER SHALL CONTRACT WITH THE ENGINEER OF RECORD TO MAKE FIELD RECORD MEASUREMENTS, OR PROVIDE TO THE ENGINEER OF RECORD CERTIFIED COPIES, SEALED BY A REGISTERED LAND SURVEYOR, OF THE WORK UPON NOTIFICATION BY THE WATER/SEWER CONTRACTOR THAT THE PIPE WORK IS COMPLETE AND IS READY FOR RECORD DRAWING SURVEY. IF THE CONTRACTOR DOES NOT LEAVE THE TRENCHES OPEN SO THE ACTUAL PIPELINE AND SERVICES CAN BE OBSERVED, THE RECORD DRAWING MEASUREMENTS WILL REFLECT THE TRENCH LOCATION ONLY. IF THE TRENCHES ARE BACKFILLED AND OBSCURED TO THE POINT THAT RECORD DRAWING MEASUREMENTS CANNOT BE PERFORMED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCURATE RECORD DRAWING MEASUREMENTS AND SECURING THE ACCEPTANCE OF THE RECORD DRAWING BY THE JURISDICTIONAL AGENCY.
20. THE CONTRACTOR SHALL NOTIFY THE RESPONSIBLE PARTY FOR THE FIELD RECORD MEASUREMENTS BEFORE FITTINGS ARE COVERED SO RECORD DRAWING MEASUREMENTS MAY BE TAKEN. FITTINGS SHALL NOT BE COVERED UNTIL SURVEYS HAVE BEEN COMPLETED.
21. THE CONTRACTOR SHALL PROVIDE WHEN REQUIRED BY ANY JURISDICTIONAL GOVERNMENTAL ENTITY, ALL SIGNS, EQUIPMENT, AND PERSONNEL NECESSARY TO PROVIDE FOR SAFE AND EFFICIENT TRAFFIC FLOW IN ALL AREAS WHERE THE WORK WILL INTERRUPT, INTERFERE OR CAUSE TO CHANGE IN ANY FORM THE CONDITIONS OF TRAFFIC FLOW THAT EXISTED PRIOR TO THE COMMENCEMENT OF ANY PORTIONS OF THE WORK. THE CLIENT MAY, AT HIS DISCRETION, REQUIRE THE CONTRACTOR TO FURNISH TRAFFIC CONTROL UNDER THESE OR OTHER CIRCUMSTANCES WHERE, IN HIS OPINION IT IS NECESSARY FOR THE PROTECTION OF LIFE AND PROPERTY. THE NEED FOR TRAFFIC CONTROL SHALL BE ANTICIPATED BY THE CLIENT.
22. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ARRANGE FOR THE RELOCATION OR BRACING OF EXISTING UTILITY POLES THAT MAY BE WITHIN THE WORKING LIMITS OF THIS CONTRACT. IT IS EXPRESSLY UNDERSTOOD THAT ALL WORK AND COSTS CONNECTED WITH THE MAINTENANCE OF THESE UTILITY POLES, THEIR TEMPORARY RELOCATION, ETC., SHALL BE THE RESPONSIBILITY OF THE CLIENT OR THE CONTRACTOR.
23. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO ARRANGE FOR THE RELOCATION AND COST OF ALL UTILITIES. THE DEVELOPER SHALL PROVIDE UTILITY SERVICE PROVIDERS ADVANCE NOTICE OF THE PROJECT WITH SUFFICIENT TIME FOR UTILITY REVIEW.
24. NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENTS, AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING SUITABLE EQUIPMENT ON HAND AT THE JOB SITE FOR MAINTENANCE OF DUST CONTROL.
26. THE CONTRACTOR SHALL NOTIFY THE DEVELOPER AT LEAST 48 HOURS IN ADVANCE FOR ANY STAKING OR RESTAKING REQUIRED.

GRADING NOTES

1. ALL EARTHWORK CONSTRUCTION SHALL CONFORM TO THE LATEST CITY AND/OR COUNTY STANDARDS AND SPECIFICATIONS INCLUDING ANY SUPPLEMENTS THERE TO.
2. BACKFILL SHALL CONSIST OF USING BORROW MATERIAL WITH A MINIMUM 20 PERCENT CLAY COMPOSITION.
3. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED ON TOP OF CLAY BORROW MATERIAL BEFORE VEGETATION IS PLANTED OR SEEDED.

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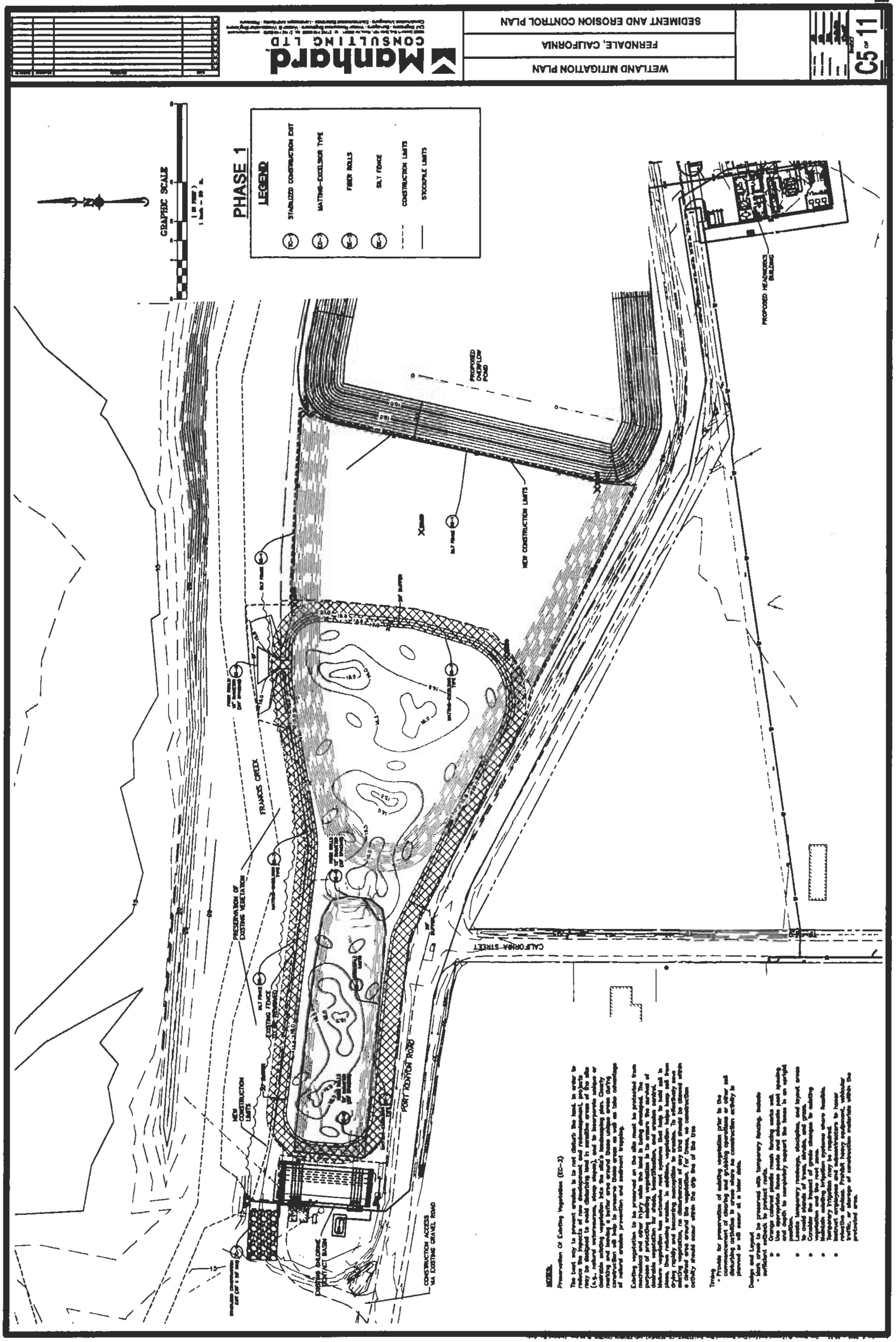
WETLAND MITIGATION PLAN

FERNDALE, CALIFORNIA

CONSTRUCTION NOTES AND DETAILS

SHEET C4-11


WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
SEDIMENT AND EROSION CONTROL PLAN
Manhard CONSULTING LTD
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PHASE 1
LEGEND
GRAPHIC SCALE
FRANCIS CREEK
PORT KENYON ROAD
CALIFORNIA STREET

PROJECT NAME:	FERNDALE WASTEWATER TREATMENT PLANT WETLAND MITIGATION PLAN
LOCATION:	NORTH OF PORT KENYON ROAD AT WASTEWATER TREATMENT PLAN
DISTURBED AREA:	1.56 ACRES
EXISTING LAND USE:	PROPERTY IS CURRENTLY WASTEWATER TREATMENT PLAN
PROPOSED LAND USE:	PROPERTY USE WILL BECOME WETLANDS (APPROXIMATELY 2 ACRES OF SITE)
SURROUNDING LAND USE:	SURROUNDING PROPERTIES INCLUDE AGRICULTURAL FIELDS
RECEIVING WATERS:	FRANCIS CREEK
OWNER/DEVELOPER NAME:	CITY OF FERNDALE
ADDRESS:	834 MAIN STREET
CITY, STATE:	FERNDALE, CA 95536
PHONE NUMBER:	(707) 786-4224

24-HOUR EAS CONTACT
DOUG CULBERT
SEWER PLANT OPERATOR
(707) 845-2087

GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL

EROSION CONTROL, ALSO REFERRED TO AS SOIL STABILIZATION, CONSISTS OF SOURCE CONTROL MEASURES THAT ARE DESIGNED TO PREVENT SOIL PARTICLES FROM DETACHING AND BECOMING TRANSPORTED IN STORM WATER RUNOFF.

EROSION CONTROL BMPS PROTECT THE SOIL SURFACE BY COVERING AND/OR BINDING SOIL PARTICLES. THIS PROJECT WILL INCORPORATE EROSION CONTROL MEASURES REQUIRED BY THE CONTRACT DOCUMENTS, AND OTHER MEASURES SELECTED BY THE CONTRACTOR, SWPPP MANAGER, OR OWNER.

1. PRESERVE EXISTING VEGETATION WHERE REQUIRED AND WHEN FEASIBLE.
2. APPLY TEMPORARY EROSION CONTROL TO REMAINING ACTIVE AND NON-ACTIVE AREAS AS REQUIRED BY THE CALIFORNIA STORMWATER BMPS HANDBOOK – CONSTRUCTION, AND THE CONTRACT DOCUMENTS. REAPPLY AS NECESSARY TO MAINTAIN EFFECTIVENESS.
3. IMPLEMENT TEMPORARY EROSION CONTROL MEASURES AT REGULAR INTERVALS THROUGHOUT THE DEFINED RAINY SEASON TO ACHIEVE AND MAINTAIN THE CONTRACT'S DISTURBED SOIL AREA REQUIREMENTS. IMPLEMENT EROSION CONTROL PRIOR TO THE DEFINED RAINY SEASON.
4. STABILIZE NON-ACTIVE AREAS AS SOON AS FEASIBLE AFTER THE CESSATION OF CONSTRUCTION ACTIVITIES.
5. CONTROL EROSION IN CONCENTRATED FLOW PATHS BY APPLYING EROSION CONTROL BLANKETS, EROSION CONTROL SEEDING, AND LINING SWALES AS REQUIRED IN THE CONTRACT DOCUMENTS.
6. APPLY SEED TO AREAS DEEMED SUBSTANTIALLY COMPLETE BY THE OWNER DURING THE DEFINED RAINY SEASON.
7. AT COMPLETION OF CONSTRUCTION, APPLY PERMANENT EROSION CONTROL TO ALL REMAINING DISTURBED SOIL AREAS.
8. SUFFICIENT EROSION CONTROL MATERIALS WILL BE MAINTAINED ON-SITE TO ALLOW IMPLEMENTATION IN CONFORMANCE WITH PERMIT REQUIREMENTS AND DESCRIBED IN THIS SWPPP. THIS INCLUDES IMPLEMENTATION REQUIREMENTS FOR ACTIVE AREAS AND NON-ACTIVE AREAS THAT REQUIRE DEPLOYMENT BEFORE THE ONSET OF RAIN.
9. BMPS WILL BE DEPLOYED IN A SEQUENCE TO FOLLOW THE PROGRESS OF GRADING AND CONSTRUCTION. AS LOCATIONS OF SOIL DISTURBANCE CHANGE, EROSION AND SEDIMENT CONTROLS WILL BE ADJUSTED ACCORDINGLY TO CONTROL STORM WATER RUNOFF AT THE DOWNGRADE PERIMETER AND OUTLET. BMPS WILL BE MOBILIZED AS FOLLOWS:
   a. YEAR-ROUND
      i. THE STORMWATER POLLUTION PREVENTION MANAGER (SWPPM) WILL MONITOR THE WEATHER USING THE NATIONAL WEATHER SERVICE TO TRACK CONDITIONS AND ALERT CREWS OF RAINFALL EVENTS.
      ii. DISTURBED AREAS WILL BE STABILIZED WITH TEMPORARY OR PERMANENT EROSION CONTROL AS SOON AS POSSIBLE AFTER GRADING OR CONSTRUCTION IS COMPLETE.
   b. DURING THE RAINY SEASON
      i. DISTURBED AREAS WILL BE STABILIZED WITH TEMPORARY OR PERMANENT EROSION CONTROL BEFORE RAIN EVENTS
      ii. DISTURBED AREAS THAT ARE SUBSTANTIALLY COMPLETE WILL BE STABILIZED WITH PERMANENT EROSION CONTROL (SOIL STABILIZATION) AND VEGETATION (IF WITHIN WINDOW FOR SEEDING ESTABLISHMENT).
      iii. PRIOR TO FORECAST RAIN EVENTS TEMPORARY EROSION CONTROLS WILL BE DEPLOYED AND INSPECTED.
   c. DURING THE NON-RAINY SEASON
      i. THE PROJECT SCHEDULE WILL SEQUENCE CONSTRUCTION ACTIVITIES WITH THE INSTALLATION OF BOTH EROSION CONTROL PRACTICES AND SEDIMENT CONTROL MEASURES. THE CONSTRUCTION SCHEDULE WILL BE ARRANGED AS MUCH AS PRACTICABLE TO LEAVE EXISTING VEGETATION UNDISTURBED UNTIL IMMEDIATELY PRIOR TO GRADING.
10. EROSION CONTROL BLANKETS WILL BE USED TO PROVIDE LONG TERM STABILIZATION FOR ALL CUT AND FILL SLOPES.
11. POLYETHYLENE COVERS WILL BE USED TO COVER EXPOSED SOIL AND STOCKPILED MATERIAL AREAS. COVERS WILL BE PLACED OVER STOCKPILED MATERIALS PRIOR TO FORECAST STORM EVENTS, AND ANCHORED TO PREVENT DAMAGE BY WIND.

SEDIMENT CONTROL NOTES
1. SEDIMENT CONTROLS ARE STRUCTURAL MEASURES THAT ARE INTENDED TO COMPLEMENT AND ENHANCE THE SELECTED EROSION CONTROL MEASURES AND REDUCE SEDIMENT DISCHARGES FROM ACTIVE CONSTRUCTION AREAS. SEDIMENT CONTROLS ARE DESIGNED TO INTERCEPT AND SETTLE OUT SOIL PARTICLES THAT HAVE BEEN DETACHED AND TRANSPORTED BY THE FORCE OF WATER.
2. THIS PROJECT WILL INCORPORATE SEDIMENT CONTROL MEASURES REQUIRED BY THE CONTRACT DOCUMENTS, AND OTHER MEASURES SELECTED BY THE CONTRACTOR, SWPPP MANAGER, OR OWNER.
3. SUFFICIENT QUANTITIES OF TEMPORARY SEDIMENT CONTROL MATERIALS WILL BE MAINTAINED ON-SITE THROUGHOUT THE DURATION OF THE PROJECT, TO ALLOW IMPLEMENTATION OF TEMPORARY SEDIMENT CONTROLS IN THE EVENT OF PREDICTED RAIN, AND FOR RAPID RESPONSE TO FAILURES OR EMERGENCIES, IN CONFORMANCE WITH OTHER PERMIT REQUIREMENTS AND AS DESCRIBED IN THIS SWPPP. THIS INCLUDES IMPLEMENTATION REQUIREMENTS FOR ACTIVE AREAS AND NON-ACTIVE AREAS BEFORE THE ONSET OF RAIN.
4. TEMPORARY SEDIMENT CONTROL BMPS WILL BE DEPLOYED ACCORDING TO THE SCHEDULE SHOWN ON THE PLANS.
5. DURING THE RAINY SEASON, TEMPORARY SEDIMENT CONTROLS WILL BE IMPLEMENTED AT THE PERIMETER OF THE PROJECT SITE PRIOR TO THE DISTURBANCE OF ANY SOILS. THESE AREAS WILL BE MAINTAINED AT ALL TIMES.
6. DURING THE NON-RAINY SEASON, TEMPORARY SEDIMENT CONTROLS WILL BE IMPLEMENTED AT THE PERIMETER OF THE PROJECT SITE PRIOR TO ANY RAIN EVENT. THESE AREAS WILL BE INSPECTED AND MAINTAINED PRIOR TO ANY FORECAST RAINFALL.
7. DURING THE NON-RAINY SEASON, IN THE EVENT OF A PREDICTED STORM, THE FOLLOWING TEMPORARY EROSION CONTROL MATERIALS WILL BE MAINTAINED ON-SITE: SILT FENCE, SANDBAGS FOR LINEAR BARRIERS, AND FIBER ROLLS.

TRACKING CONTROL NOTES
1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT WILL BE CONSTRUCTED AND MAINTAINED AT CONSTRUCTION SITE ENTRANCES AND EXITS AS INDICATED ON THE MAP.
2. THE SITE ENTRANCE/EXIT WILL BE STABILIZED TO REDUCE TRACKING OF SEDIMENT AS A RESULT OF CONSTRUCTION TRAFFIC. THE ENTRANCE WILL BE DESIGNED TO PREVENT RUNOFF FROM LEAVING THE SITE. STABILIZATION MATERIAL WILL CONSIST OF 3 TO 6-INCH AGGREGATE. THE ENTRANCE WILL BE FLARED WHERE IS MEETS THE EXISTING ROAD TO PROVIDE ANY ADEQUATE TRACKING RADIUS.

WIND CONTROL
1. POTABLE WATER WILL BE APPLIED TO DISTURBED AREAS OF THE PROJECT SITE TO CONTROL DUST AND MAINTAIN OPTIMUM MOISTURE LEVELS FOR COMPACTION.
2. THE WATER WILL BE APPLIED WITH WATER TRUCKS.
3. WATER APPLICATIONS WILL BE CONCENTRATED DURING THE LATE SUMMER AND EARLY FALL MONTHS.
4. BMP WE-1, WIND EROSION CONTROL, AND NS-1, WATER CONSERVATION PRACTICES, WILL BE IMPLEMENTED TO PROVIDE DUST CONTROL AND PREVENT DISCHARGES FROM DUST CONTROL ACTIVITIES AND WATER SUPPLY EQUIPMENT. WATER APPLICATION RATES WILL BE MINIMIZED AS NECESSARY TO PREVENT RUNOFF AND PONDING. ANY LEAKS FROM WATER EQUIPMENT WILL BE REPAIRED IMMEDIATELY.
5. DURING WINDY CONDITIONS (FORECAST OR ACTUAL WIND OF 25 MPH OR GREATER), DUST CONTROL WILL BE APPLIED TO DISTURBED AREAS, INCLUDING HAUL ROADS, TO ADEQUATELY CONTROL WIND EROSION.
6. BMP WM-3, STOCKPILE MANAGEMENT, USING SILT FENCES AND PLASTIC COVERS WILL BE IMPLEMENTED TO PREVENT WIND DISPERSAL OF SEDIMENT FROM STOCKPILES.

NON-STORM CONTROL
1. NON-STORM WATER DISCHARGES CONSIST OF ALL DISCHARGES FROM A MUNICIPAL STORMWATER CONVEYANCE WHICH DO NOT ORIGINATE FROM PRECIPITATION EVENTS.
2. PROHIBITED ILLICIT DISCHARGES – ALL NON-STORM WATER DISCHARGES INTO STORM DRAINAGE SYSTEMS OR WATERWAYS, WHICH ARE NOT AUTHORIZED UNDER THIS OR OTHER NPDES PERMIT, ARE PROHIBITED. EXAMPLES OF COMMON PROHIBITED DISCHARGES INCLUDE:
   a. VEHICLE AND EQUIPMENT CLEANING, FUELING, AND MAINTENANCE,
   b. VEHICLE EQUIPMENT WASH WATER, INCLUDING CONCRETE WASHOUT WATER,
   c. SLURRIES FROM CONCRETE CUTTING,
   d. SLURRIES FROM CONCRETE OR MORTAR MIXING OPERATIONS,
   e. SLURRIES FROM DRILLING OR BORING ACTIVITIES,
   f. BLAST RESIDUE FROM HIGH-PRESSURE WASHING,
   g. RUNOFF DUST CONTROL APPLICATIONS OF WATER OR DUST PALLIATIVES,
   h. SANITARY OR SEPTIC WASTES, AND
   i. CHEMICAL LEAKS OR SPILLS OF ANY KIND, INCLUDING BUT NOT LIMITED TO PETROLEUM, PAINTS, CURE COMPOUNDS, ETC.
3. THE CONTRACTOR WILL IMPLEMENT BMP NS-6, ILLICIT CONNECTION/ILLEGAL DISCHARGE DETECTION AND REPORTING THROUGHOUT THE DURATION OF THE PROJECT.

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL
1. IN GENERAL BMPS WM-1 AND WM-2 WILL BE IMPLEMENTED TO HELP PREVENT DISCHARGE OF CONSTRUCTION MATERIALS DURING DELIVERY, STORAGE, AND USE.
2. BMP WM-3 WILL BE IMPLEMENTED TO REDUCE OR ELIMINATE THE POLLUTION OF STORMWATER FROM STOCKPILES. STOCKPILES WILL BE SURROUNDED WITH SEDIMENT CONTROLS (SE-5, FIBER ROLLS), AND PLASTIC COVERS (EC-7, GEOTEXTILES) WILL BE USED.
3. BMP WM-4, SPILL PREVENTION AND CONTROL, WILL BE IMPLEMENTED TO CONTAIN AND CLEAN UP SPILLS AND PREVENT MATERIAL DISCHARGES TO THE ADJACENT CREEK.
4. BMP WM-5, SOLID WASTE MANAGEMENT, AND WM-6, HAZARDOUS WASTE MANAGEMENT, WILL BE IMPLEMENTED TO HELP MINIMIZE STORMWATER CONTACT WITH WASTE MATERIALS TO PREVENT WASTE DISCHARGES.
5. SOLID WASTES WILL BE LOADED DIRECTLY INTO TRUCKS FOR OFF-SITE DISPOSAL.
6. SOLID WASTE SHOULD BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT LEAST WEEKLY.
7. ANY HAZARDOUS WASTE WILL BE STORED IN SHIPPING CONTAINERS OR IN A COVERED CONTAINMENT AREA. HAZARDOUS WASTES WILL BE CLEARLY MARKED CONTAINERS AND WILL BE SEGREGATED FROM OTHER WASTE MATERIALS.
8. THE CONTRACTOR WILL IMPLEMENT BMP WM-9, SANITARY AND SEPTIC WASTE MANAGEMENT, AND PORTABLE TOILETS WILL BE LOCATED AND MAINTAINED AT THE CONTRACTOR'S YARD FOR THE DURATION OF THE PROJECT. THE TOILETS WILL BE LOCATED AWAY FROM CONCENTRATED FLOW PATHS AND TRAFFIC FLOW, AND WILL BE MAINTAINED AT LEAST WEEKLY.

[illegible]

NPDES PERMIT COVERAGE:
This plan has been prepared to meet the requirements under the California NPDES Program, for authorization to discharge under the national pollutant discharge elimination system (NPDES), storm water discharges associated with construction activity for infrastructure.

Authorized Discharges
1. All discharges of storm water associated with construction activity that will result in land disturbance equal to or greater than one acre.
2. All discharges covered by this permit shall be composed entirely of storm water or authorized discharges below.
3. Authorized mixed storm water discharges:
   A. The industrial source of activity other than construction is located on the same site as the construction activity and is an integral part of the construction activity.
   B. The storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit.
   C. Storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring are covered by a different NPDES general permit or individual permit authorizing such discharges and the discharges are in compliance with a different NPDES permit.
4. Authorized non-storm water discharges
   A. Fire fighting activities
   B. Fire hydrant flushing
   C. Potable water sources including water line flushing
   D. Irrigation drainage
   E. Air conditioning condensate
   F. Springs
   G. Uncontaminated ground water
   H. Foundation or footing drains where flows are not contaminated with process materials for pollutants

Limitation of Coverage
1. The following storm water discharges from construction sites are not authorized by this permit:
   A. Storm water discharges associated with an industrial activity that originates from the site after construction activities have been completed and the site has undergone final stabilization.
   B. Discharges that are mixed with sources of non-storm water other than discharges which are identified in the permit and which are in compliance with (non-storm water discharges) the permit.
   C. Storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitation for such discharges.
   D. Storm water discharges from construction sites that the State of California has determined to be or may reasonably are expected to be contributing to a violation of water quality standard.
2. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under 40 CFR 117 or 40 CFR 302 occurs during a 24-hour period, the permittee is required to notify the following agencies in accordance with the above-mentioned regulations as soon as he has knowledge of the discharge: National Response Center (NRC) at (800) 424-8802.
3. This permit does not authorize the discharge of hazardous substances or oil resulting from an onsite spill.

Water Quality Compliance
All discharges authorized by this permit shall not cause violations of California's in-stream water quality standards as provided by the rules and regulations for water quality control.

Sampling Methodology
All sampling shall be collected by "Grab Samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 and Table 800-1, "Sample Collection, Preservation, Turbidity" provided in Section 800.4.5.

1. Sample containers should be labeled prior to collecting the samples.
2. Large mouth, clean and rinsed glass or plastic jars with a minimum sample size of 200 milliliters should be used for collecting samples.
3. Samples should be taken from the horizontal and vertical center of the receiving water(s) or the storm water outfall channel(s).
4. Samples should be well mixed before transferring to a secondary container.
5. The sampling container should be held so that the opening faces upstream, the samples should be kept free from floating debris, and care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall storm water channel.
6. The upstream sample for each receiving water(s) must be taken at the discharge farthest upstream at the site but downstream of any other storm water discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.
7. The downstream sample for each receiving water(s) must be taken at the discharge farthest downstream at the site but upstream of any other storm water discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.
8. Samples should be delivered to a CA-state certified lab for analysis within 24-hours. COCs should be maintained.

Sampling Frequency
1. Sampling frequency shall occur in accordance with the site-specific Sampling and Analysis Plan (SAP).

Pollution Prevention Measures
Good Housekeeping Practices

- An effort will be made to store only enough product to do the job.
- All materials onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under one roof or enclosure.
- Products will be kept in their original container with original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before container is disposed of.

Product Specific Practices

Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum to be stored in tanks will have be surrounded by an earthen berm as a secondary protective measure. Any Asphalt substances used onsite will be applied according to the manufacturer's recommendations.

Fertilizers

Fertilizer used will be applied only in the amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Concrete Truck Washing

No concrete trucks will be allowed to wash-out or discharge surplus concrete or drum wash water onsite.

Sanitary Wastes

Keep Porta-Johns away from storm drain inlets and receiving bodies of water or floating of Porta-Johns in to storm inlets or receiving bodies of water. Runoff from Porta-Johns into water systems is a violation of Federal, State, and Local ordinances.

Waste Disposal

No waste materials will be buried or disposed of onsite. All waste materials will be collected and stored in a securely lided metal dumpster that meets all solid waste regulations. Waste materials will be removed from the site, hauled, and properly disposed of according to local regulations.

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
TC-1	CONSTRUCTION EXIT	[detail drawing]	[map symbol]	A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
EC-7	TEMPORARY AND PERMANENT MATTING	[detail drawing]	[map symbol]	A protective covering (blanket) or soil stabilization mat used to establish vegetation on steep slopes, channels, or along shorelines.
SE-1	SEDIMENT BARRIER	[detail drawing]	[map symbol]	A barrier to prevent sediment from leaving the construction site.
SE-5	FIBER ROLLS	[detail drawing]	[map symbol]	Straw, flax, or coir, bound together in a tight roll used to intercept runoff and reduce erosion.

CONSTRUCTION SCHEDULE	MAY 2011			
	MAY	JUNE	JULY	AUGUST
MOBILIZATION	■			
INSTALLATION OF PRELIMINARY SEDIMENT CONTROL MEASURES	■			
CLEARING AND GRUBBING	■			
INSTALLATION / MAINTENANCE OF E&S MEASURES	■	■	■	■
WETLAND CONSTRUCTION	■	■	■	■
PERMANENT SEEDING / PLANTING OF THE SHRUBS				■
FINAL STABILIZATION / REMOVE EROSION CONTROL MEASURES				■

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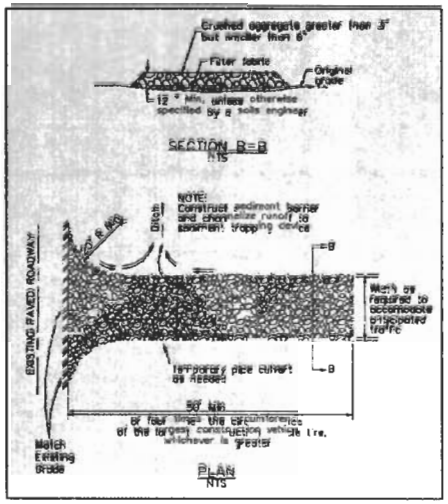
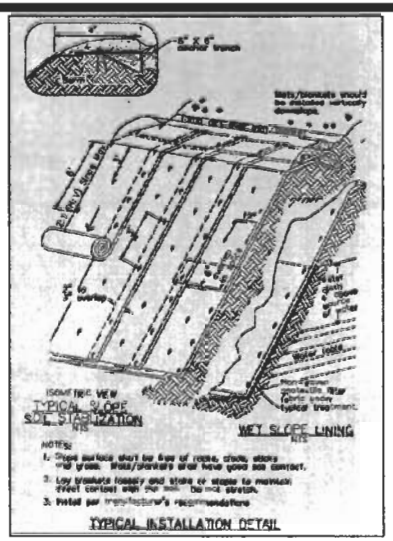
WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
SEDIMENT AND EROSION CONTROL NOTES

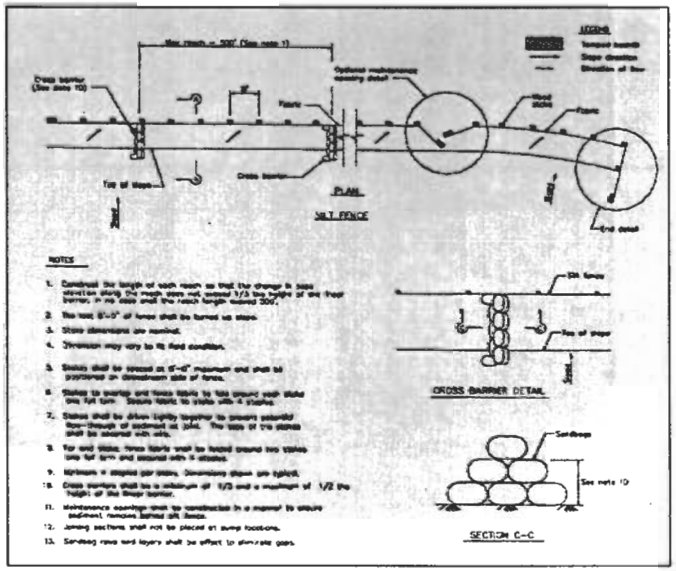
C6-11



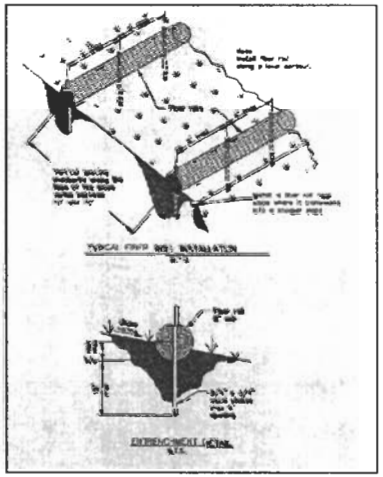
STABILIZED CONSTRUCTION EXIT
NOT TO SCALE — TC-1



MATTING-EXCELSIOR TYPE
NOT TO SCALE — EC-7



SILT FENCE
NOT TO SCALE — SE-1



FIBER ROLLS
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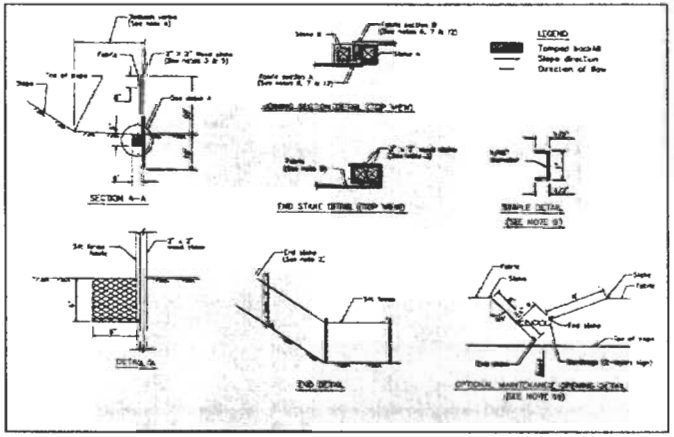

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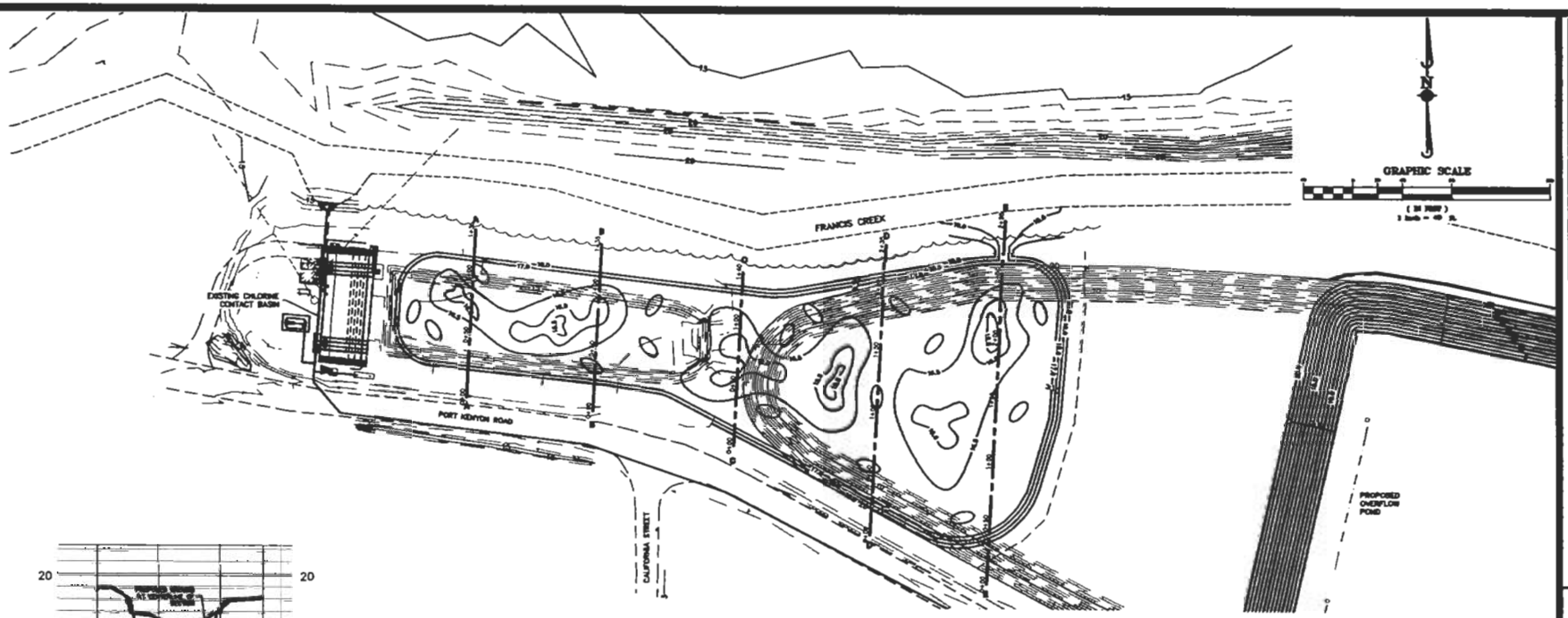
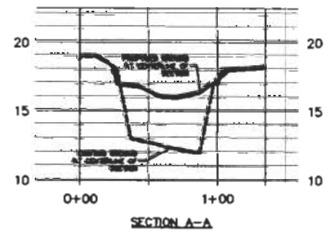
WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
SEDIMENT AND EROSION CONTROL DETAILS

SHEET C7-11





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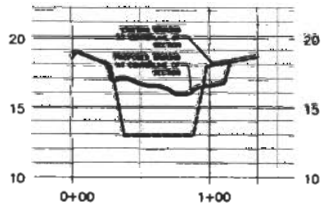

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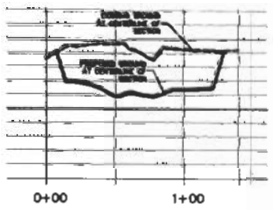

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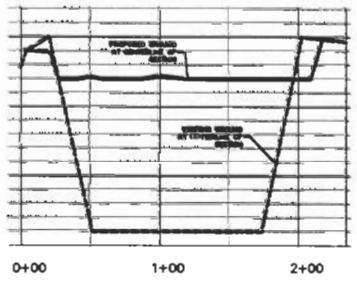

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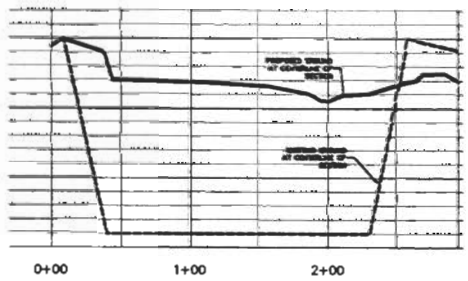

SECTION E–E

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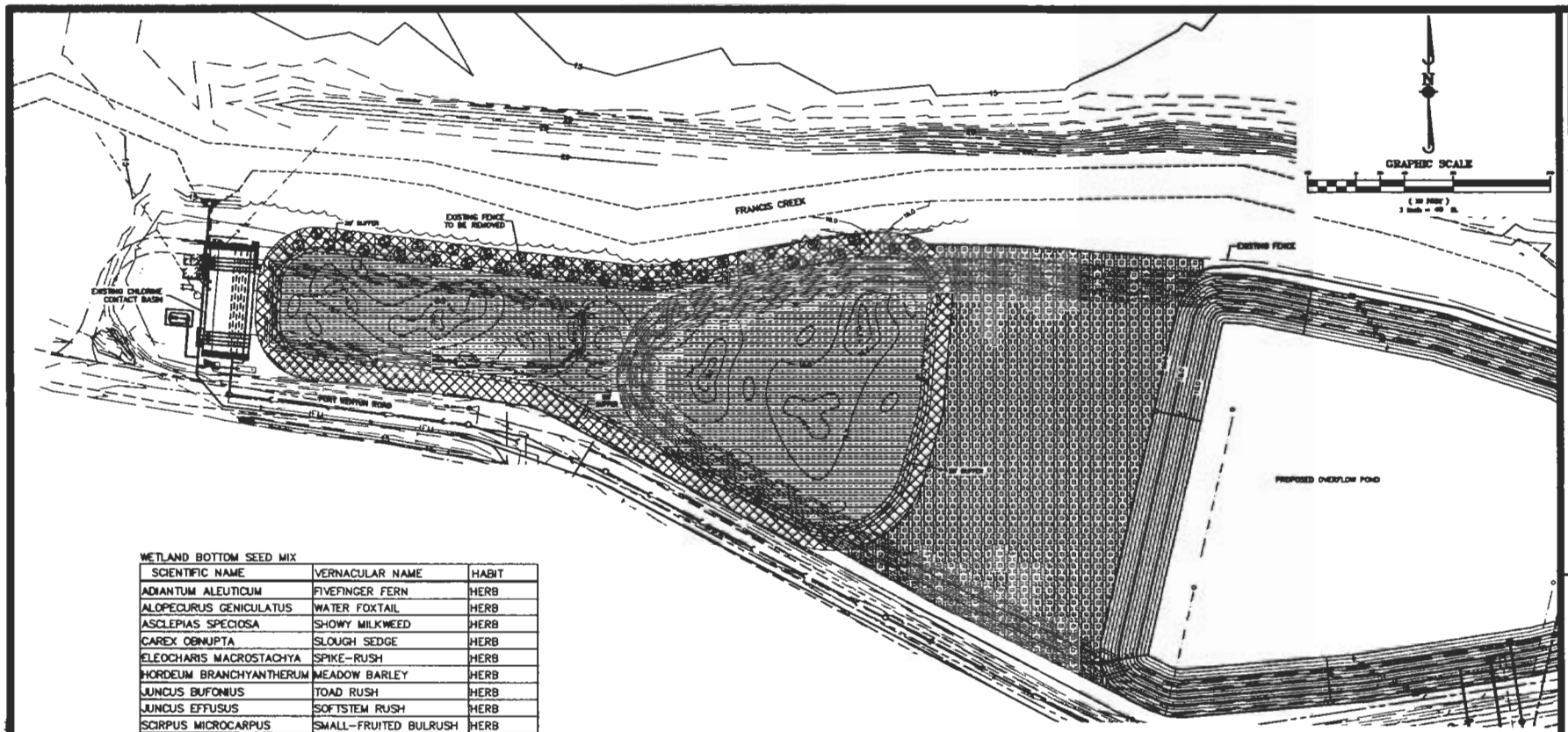
WETLAND MITIGATION PLAN

FERNDALE, CALIFORNIA

WETLAND CROSS SECTIONS

SHEET C8 OF 11



WETLAND BOTTOM SEED MIX

SCIENTIFIC NAME	VERNACULAR NAME	HABIT
ADIANTUM ALEUTICUM	FIVEFINGER FERN	HERB
ALOPECURUS GENICULATUS	WATER FOXTAIL	HERB
ASCLEPIAS SPECIOSA	SHOWY MILKWEED	HERB
CAREX OBNUPTA	SLOUGH SEDGE	HERB
ELEOCHARIS MACROSTACHYA	SPIKE-RUSH	HERB
HORDEUM BRANCHYANTHERUM	MEADOW BARLEY	HERB
JUNCUS BUFONIUS	TOAD RUSH	HERB
JUNCUS EFFUSUS	SOFTSTEM RUSH	HERB
SCIRPUS MICROCARPUS	SMALL-FRUITED BULRUSH	HERB
SPARGANIUM EMERSUM	BURREED	HERB

WETLAND BUFFER SEED MIX

SCIENTIFIC NAME	VERNACULAR NAME	HABIT
ARALIA CALIFORNICA	ELK-CLOVER	HERB
ASCLEPIAS SPECIOSA	SHOWY MILKWEED	HERB
ATHYRIUM FILIX-FEMINA	LADY FERN	HERB
CALAMAGROSTIS FOLIOSA	LEAFY REED GRASS	HERB
CAREX BARBARAE	SANTA BARBARA SEDGE	HERB
ELYMUS GLAUCUS	BLUE WILD RYE	HERB
JUNCUS BUFONIUS	TOAD RUSH	HERB
JUNCUS PATENS	GREY RUSH	HERB

MAINTAINED AREA SEED MIX

SCIENTIFIC NAME	VERNACULAR NAME	HABIT
ELYMUS GLAUCUS	BLUE WILDRYE	HERB
FESTUCA CALIFORNICA	CALIFORNIA FESCUE	HERB

WETLAND RIPARIAN BUFFER

SCIENTIFIC NAME	VERNACULAR NAME	HABIT	SIZE
ACER CIRCINNATUM	VINE MAPLE	TREE	5 GALLON
ACER MACROPHYLLUM	BIGLEAF MAPLE	TREE	5 GALLON
ALNUS RUBRA	RED ALDER	TREE/SHRUB	5 GALLON
ASCLEPIAS SPECIOSA	SHOWY MILKWEED	HERB	
CALAMAGROSTIS FOLIOSA	LEAFY REED GRASS	HERB	
CAREX BARBARAE	SANTA BARBARA SEDGE	HERB	
CRATAEGUS DOUGLASSII	HAWTHORN	TREE/SHRUB	5 GALLON
ELYMUS GLAUCUS	BLUE WILD RYE	HERB	
FRAXINUS LATIFOLIA	OREGON ASH	TREE	
JUNCUS BUFONIUS	TOAD RUSH	HERB	
JUNCUS PATENS	GREY RUSH	HERB	
PRUNUS VIRGINIANA	WESTERN CHOKEBERRY	TREE	5 GALLON
SALIX LASIOLEPIS	ARROYO WILLOW	TREE/SHRUB	5 GALLON

LEGEND

- WETLAND BOTTOM SEED MIX AND PLUGS
- WETLAND BUFFER SEED MIX AND PLUGS
- WETLAND RIPARIAN BUFFER
- MAINTAINED AREA SEED MIX

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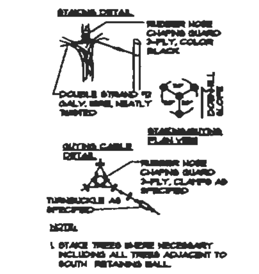
WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
PLANTING PLAN

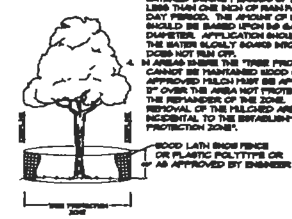
C9 - 11

GENERAL NOTES:

1. STANDARDS: ALL PLANT MATERIAL SHALL CONFORM TO STANDARDS SET FORTH IN THE CURRENT EDITION OF AMERICAN STANDARDS FOR NURSERY STOCK OF NURSERYMAN.
2. TREE COUYING: ALL TREES WITH A 1" CALIPER OR GREATER SHALL BE STAKCED FOR SIX MONTHS – ONE YEAR TO ENSURE THAT THE ROOTS HAVE BECOME ESTABLISHED.
3. GUARANTEE: ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE NURSERY CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL INSTALLATION TO ENSURE THE SURVIVABILITY OF PLANT MATERIALS.
4. PLANTING TIME: PLANT TREES AND SHRUBS DURING DORMANT SEASON AFTER SHOOTS CEASE GROWTH IN FALL AND UNTIL GROWTH BEGINS IN SPRINGS. PLANTING SHOULD NOT BE ATTEMPTED IN FROZEN OR SNOW-COVERED GROUND OR WHEN SOILS ARE WET AND STICKY.
5. GROUND PREPARATION: PRIOR TO SEEDING WITHIN THE WETLAND AND UPLAND AREAS, CONTRACTOR SHALL SCARIFY THE TOPSOIL WITH A CHISEL PLOW, RIPPER, OR OTHER EQUIPMENT TO DEPTH OF 2 TO 4 INCHES TO LOOSEN ANY COMPACTED TOPSOIL.
6. PLANTING LIMITS: BEFORE GROUND PREPARATION, PLANTING LIMITS SHALL BE STAKED BY THE ENGINEER IN ACCORDANCE WITH THE PLANS.
7. APPLICATION OF LIME AND FERTILIZER: CONTRACTOR SHALL BE RESPONSIBLE FOR pH TESTING OF SOILS. IF THE pH IS 6.0 OR HIGHER, NO LIME IS REQUIRED. AGRICULTURAL LIME SHALL BE UNIFORMLY SPREAD ON THE SURFACE OF GROUND AT THE APPROXIMATE RATE DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL SELECT TO USE FERTILIZER MIXED GRADE 6-12-12, 5-10-15 OR ANY OTHER ANALYSIS WITHIN THE FOLLOWING LIMITS: NITROGEN 5-10% AND POTASSIUM 10-15%. THE FERTILIZER SHALL BE SPREAD UNIFORMLY OVER THE GROUND SURFACE IN UPLAND AREAS OF THE APPROXIMATE RATE OF 200 POUNDS PER ACRE. THE LIME AND FERTILIZER SHALL BE UNIFORMLY MIXED INTO THE TOP 4 INCHES OF SOIL BY SUITABLE ROTARY FILLERS AND OTHER EQUIPMENT SATISFACTORY TO THE ENGINEER BEFORE ANY FURTHER WORK IS DONE ON THE AREA.
8. SEEDING: WEATHER PERMITTING, SEED SHALL BE UNIFORMLY SOWN BY THE USE OF APPROVED MECHANICAL SEED DRILLS BY MIXING SEED WITH DRY SAND AND SPREADING WITH EITHER A DROP SPREADER OR ROTARY SPREADER OR HYDROSEEDING. THE SEED SHALL BE COVERED TO A MAXIMUM DEPTH OF 1/8 INCH.
9. NO DEEP PLANTINGS.
10. PLANT AREAS SHALL BE KEPT SATURATED FOR 2 YEARS DURING THE SEED GERMINATION AND ESTABLISHMENT PHASES. THE CONTRACTOR SHALL PROVIDE PLANT ESTABLISHMENT OF THE SPECIFIED VEGETATION PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. PLANT ESTABLISHMENT AND SEED GERMINATION SHALL CONSIST OF PRESERVING, PROTECTING, WATERING, RESEEDING, OR REPLANTING AND OTHER SUCH WORK AND AT SUCH TIME AS MAY BE NECESSARY TO KEEP THE RESTORATION AREAS IN A SATISFACTORY CONDITION.
11. THE ENGINEER MAY REQUIRE REPLANTING AT ANY TIME OF AN AREA OR A PORTION OF SUCH AREA WHICH FOR ANY CAUSE SHOWS UNSATISFACTORY GROWTH. EXCEPT AS OTHERWISE SPECIFIED OR PERMITTED BY THE ENGINEER, AREAS TO BE REPLANTED SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS AS IF SUCH REPLANTING WERE THE INITIAL PLANTING. HOWEVER, THE TYPE FERTILIZER AND THE APPLICATION RATE OF THE FERTILIZER TO BE FURNISHED AND APPLIED BY THE CONTRACTOR AS A PART OF PLANT ESTABLISHMENT OCCASIONED BY REPLANTING SHALL BE DETERMINED BY SOIL TESTS OR OTHERWISE ESTABLISHED BY THE ENGINEER.



TREE STAKING AND GUYING — NOT TO SCALE



TREE PROTECTION FENCE — NOT TO SCALE

1. THE CONTRACTOR SHALL ERECT A TEMPORARY FENCE AROUND ALL TREES WITHIN THE CONSTRUCTED AREA TO ESTABLISH A "TREE PROTECTION ZONE" BEFORE ANY WORK BEGINS. NO WORK IS TO BE PERFORMED, MATERIALS STORED OR VEHICLES DRIVEN OR PARKED WITHIN THE "TREE PROTECTION ZONE".
2. THE FENCE SHALL BE ERECTED AT THE DRIP-LINE OF THE TREE OR AS APPROVED BY ENGINEER.
3. TREES DESIGNATED FOR PROTECTION SHOULD BE WATERED DURING PERIODS OF DROUGHT WHEN THERE IS LESS THAN ONE INCH OF RAINFALL DURING ANY 30 DAY PERIOD. THE AMOUNT OF WATER PER TREE SHOULD BE BASED UPON 10 GALLONS PER INCH DIAMETER. APPLICATION SHOULD BE MADE SO THAT THE WATER SLOWLY SOAKS INTO THE GROUND AND DOES NOT RUN OFF.
4. IN AREAS WHERE THE "TREE PROTECTION ZONE" FENCING CANNOT BE MAINTAINED WOOD CHIPS OR OTHER APPROVED MULCH MUST BE APPLIED TO A DEPTH OF 3" OVER THE AREA NOT PROTECTED BY FENCING OVER THE REMAINDER OF THE ZONE. PLACEMENT AND REMOVAL OF THE MULCHED AREA SHALL BE INCIDENTAL TO THE ESTABLISHMENT OF THE "TREE PROTECTION ZONE".

DISTURBED AREA STABILIZATION WITH TEMPORARY AND PERMANENT SEEDING
OUTSIDE OF CONSTRUCTED WETLANDS AREAS

VEGETATIVE PRACTICES

B1	BUFFER ZONE			[illegible]
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	[illegible]
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		Ds2	[illegible]
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)		Ds3	[illegible]
Du	DUST CONTROL ON DISTURBED AREAS		Du	[illegible]

Ds2 NOTES FOR TEMPORARY SEEDING

1. INSTALL ALL EROSION CONTROL MEASURES PRIOR TO APPLYING TEMPORARY VEGETATION.
2. GRADING OR SHAPING ARE NOT REQUIRED IF SLOPES CAN BE PLANTED WITH A HYDROSEEDER OR BY HAND-SEEDING.
3. SEEDBED PREPARATION IS NOT REQUIRED IF SOIL IS LOOSE AND NOT SEALED BY RAIN.
4. WHEN THE SOIL IS SEALED OR CRUSTED, IT SHALL BE PITTED, TRENCHED OR SCARIFIED TO PROVIDE A PLACE FOR SEED TO LODGE AND GERMINATE.
5. AGRICULTURAL LIME IS NOT REQUIRED.
6. FERTILIZER IS NOT REQUIRED ON FAIRLY FERTILE SOILS.
7. FERTILIZE LOW FERTILITY SOILS BY ADDING AND MIXING INTO SOIL PRIOR TO PLANTING AT THE RATE OF 500-700 POUNDS PER ACRE OF 10-10-10 FERTILIZER OR EQUIVALENT (12-16 POUNDS/1000 SQUARE FEET).
8. SEEDING: WEATHER PERMITTING, SEED SHALL BE UNIFORMLY SOWN BY THE USE OF APPROVED MECHANICAL SEED DRILLS BY MIXING SEED WITH DRY SAND AND SPREADING WITH EITHER A DROP SPREADER OR ROTARY SPREADER OR HYDROSEEDING. THE SEED SHALL BE COVERED TO A MAXIMUM DEPTH OF 1/8 INCH.

Ds3 NOTES FOR PERMANENT SEEDING

1. INSTALL ALL EROSION CONTROL MEASURES PRIOR TO APPLYING TEMPORARY VEGETATION.
2. SCARIFY, PIT OR TRENCH SEALED OR CRUSTED SOIL.
3. FERTILIZE BASED ON SOIL TESTS OR AS SHOWN IN TABLE ABOVE.
4. APPLY SEED BY HAND, CYCLONE SEEDER, DRILL OR HYDRO-SEEDER. SEED PLANTED WITH A DRILL SHOULD BE PLANTED 1/2"-1" DEEP.
5. RE-SEED AREAS WHERE AN ADEQUATE STAND OF VEGETATION FAILS TO EMERGE OR WHERE A POOR STAND EXISTS. OPEN AREAS SHALL NOT EXCEED 5 SQUARE FEET.

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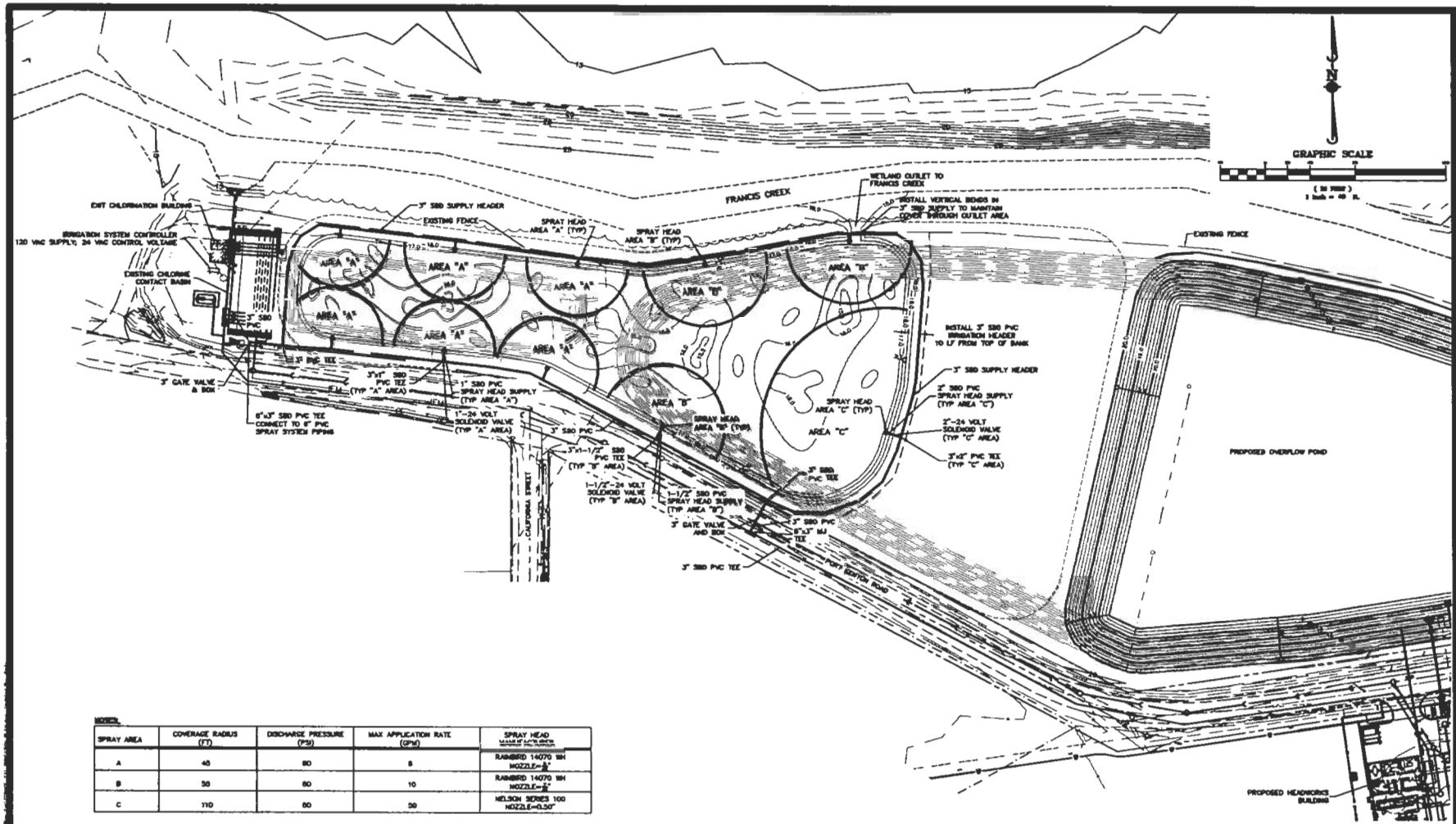
WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
PLANTING PLAN NOTES

C10-11



NOTES:

SPRAY AREA	COVERAGE RADIUS (FT)	DISCHARGE PRESSURE (PSI)	MAX APPLICATION RATE (GPM)	SPRAY HEAD
A	45	80	8	RAINBIRD 14070 18H NOZZLE=$\frac{7}{64}$"
B	35	80	10	RAINBIRD 14070 18H NOZZLE=$\frac{9}{64}$"
C	110	80	30	NELSON SERIES 100 NOZZLE=0.50"

DESIGN INFORMATION:

1. INSTALL 3" SBD PVC IRRIGATION HEADER 10 LF FROM TOP OF BANK.
2. PROVIDE 1'-6" OF COVER FOR ALL IRRIGATION SYSTEM WATER SUPPLY PIPING.
3. SYSTEM DRAWING IS SCHEMATIC IN NATURE. EACH SPRAY HEADER TO HAVE 24 VOLT CONTROL SOLENOID VALVE. VALVE SHALL BE ELECTRICALLY CONNECTED TO SYSTEM CONTROLLER.
4. SYSTEM CONTROLLER SHALL HAVE CAPABILITY TO INDIVIDUALLY CONTROL EACH SPRAY HEAD SOLENOID VALVE.
5. CONTROLLER SHALL BE DIGITALLY PROGRAMMABLE, 120 VAC SUPPLY; 24 VAC TO SOLENOID VALVES.
6. CONTROL WIRING TO SOLENOID VALVES SHALL BE IN BURIED SBD PVC CONDUITS. SPARE CONTROL WIRES SHALL BE PROVIDED.
7. ONE SPARE OF EACH SIZE OF SOLENOID VALVE SHALL BE PROVIDED.
8. 120 VOLT POWER FOR CONTROLLER SHALL COME FROM LIGHTING PANEL NEAR EXISTING CHLORINE BUILDING WHICH IS PART OF THE WWTP ADDITIONS CONTRACT WORK.

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WETLAND MITIGATION PLAN
FERNDALE, CALIFORNIA
TEMPORARY IRRIGATION PLAN

SHEET C11-11