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STAFF REPORT: REGULAR CALENDAR

Application No.:	**1-13-0280**
Applicant:	**Humboldt Bay Municipal Water District**
Agent:	GHD Inc.
Location:	An approximately two-mile long segment between the District's existing Terminal Reservoir and the Fairhaven area on the Samoa Peninsula (North Spit of Humboldt Bay), Humboldt County.
Project Description:	Construct approximately 15,406 linear feet of 20-inch PVC domestic water transmission pipeline and 12-inch PVC distribution pipelines within roadways and upland ruderal habitats to replace an existing 10,800-foot-long segment of 18-inch Techite domestic water pipeline and smaller pipe connections.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Commission staff recommends **approval** of coastal development application 1-13-0280 subject to the attached recommended special conditions.

The applicant proposes to construct a new segment of domestic water transmission and distribution pipeline to replace a deteriorating segment of existing pipeline in a new alignment along paved roadways and upland ruderal habitats (**Exhibits 1-2**). The purpose of constructing the proposed new pipeline in a different alignment than the existing Techite pipeline is to avoid disturbance to environmentally sensitive coastal dune habitats, which occur throughout the length of the existing pipeline alignment. The existing pipeline was installed in its current alignment through dune habitats in 1971, prior to CDP requirements. The proposed new alignment is entirely within existing public roadways, road easements, and existing District pipeline easements.

Staff recommends Special Conditions to ensure that (1) the proposed development adjacent to ESHA will adequately provide for the protection against the spillage of petroleum products or other hazardous substances and (2) the segment of pipeline to be replaced does not remain in service indefinitely and have growth-inducing effects.

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APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve coastal development permit 1-13-0280 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. 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:

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

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**: 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 period 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 or 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.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. <u>Construction Responsibilities</u>. The authorized development shall be implemented consistent with the following construction-related responsibilities. PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY THIS PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, evidence that all of the following construction-related water quality and ESHA protection measures have been incorporated into the final construction plans, Stormwater Pollution Prevention Plan (SWPPP), and erosion and sediment control plans for the project:

A. The permittee shall ensure that all on-site workers and contractors understand and agree to observe the standards for work outlined in this permit and in the detailed project description included as part of the application submittal and as revised by these conditions. A qualified environmental monitor familiar with environmentally sensitive habitat areas in the project vicinity shall be on site periodically to ensure contractor compliance with the environmental protection requirements of this permit;

B. Prior to commencement of ground-disturbing activities, appropriate erosion, sediment, and runoff control measures shall be deployed in accordance with the final SWPPP and erosion control plans, and all measures shall be properly maintained throughout the duration of construction activities;

C. Humboldt Bay wallflower, other rare plant, and wetland habitat areas adjacent to construction areas shall be flagged for avoidance by a qualified botanist prior to commencement of construction consistent with **Special Condition 2**;

D. No construction materials, spoils, soil, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or environmentally sensitive areas;

E. During the course of the project work, all trash shall be properly contained, removed from the work site on a regular basis, and properly disposed of to avoid inadvertent contamination of habitat during construction activities;

F. All on-site stockpiles of construction debris and soil or other earthen materials shall be covered and contained whenever there is a potential for rainfall in order to prevent polluted water runoff from the site;

G. Any construction vehicle or equipment cleaning, fueling, and/or maintenance conducted on site shall take place offsite, or if onsite then only within designated areas located at least 100 feet from coastal wetlands and waters, drainage courses, and storm drain inlets;

H. Concrete washout areas shall be located at least 100 feet from coastal wetlands and waters, drainage courses, and storm drain inlets and shall be implemented in a manner that controls runoff and prevents leaching to underlying soils;

I. Construction vehicle and equipment fueling areas shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a

designated fueling area may be fueled and maintained in other areas of the site provided that procedures are implemented to fully contain any potential spills;

J. Stockpiled materials shall be stored a minimum of 100 feet from coastal wetlands, waters, concentrated stormwater flows or drainage courses, and storm drain inlets;

K. BMPs involving revegetating/reseeding disturbed areas shall employ native plants only and species that currently occur in the Humboldt Bay coastal dune ecoregion. 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 for erosion control, revegetation, landscaping, or other purposes;

L. The use of rodenticides containing any anticoagulant compounds including, but not limited to, Warfarin, Bromadiolone, Brodifacoum, or Diphacinone is prohibited;

M. To minimize wildlife entanglement and plastic debris pollution, the use of plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers used in fiber rolls, erosion control blankets, and mulch control netting) in temporary rolled erosion and sediment control products is prohibited. Any erosion-control associated netting shall be made of natural fibers and constructed in a loose-weave design with movable joints between the horizontal and vertical twines;

N. The use of herbicides is prohibited; and

O. Construction staging, stockpiling, parking, and other work sites shall be restricted to areas identified in the approved final staging and stockpiling plan required by **Special Condition 3** to avoid impacts to adjacent environmentally sensitive habitat areas that occur around the project site. Prior to commencement of construction, the limits of the work areas and staging areas shall be delineated with temporary fencing in cooperation with a qualified biologist, limiting the potential areas affected by construction and ensuring that all wetland and other environmentally sensitive habitats adjacent to construction areas are avoided during construction. All vehicles and equipment shall be restricted to pre-established work areas and haul routes and to established or designated staging areas.

2. <u>ESHA Protection Plan</u>

A. PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, an ESHA Protection Plan designed to protect Humboldt Bay wallflower habitat, other rare plant habitat, wetlands, and other environmentally sensitive habitat areas adjacent to project work sites.

   i. The plan shall demonstrate, at a minimum, the following:

      a. Prior to commencement of construction, a qualified botanist shall install protective exclusion fencing between construction areas and rare plant and wetland habitat areas adjacent to construction areas, including staging, storage, and other work areas, and exclusion fencing shall be maintained throughout the duration of construction activities;

      b. A qualified environmental monitor familiar with environmentally sensitive habitat areas in the project vicinity shall be on site daily during ground-disturbing activities adjacent to ESHA to ensure contractor compliance with the environmental

protection requirements of this permit. The environmental monitor shall document any ESHA or water quality impacts resulting from the project and any noncompliance with the water quality and ESHA protection conditions of this permit;

c. Construction shall avoid or minimize the use of imported backfill material in dune habitats outside paved roadway areas. If import material is used off pavement in dune habitats, the material shall be free of nonnative plants and insects; and

d. A qualified botanist shall monitor all areas where imported backfill material is placed in dune habitats outside paved roadway areas on a quarterly basis for a minimum of one year following completion of construction to ensure that no invasive or other nonnative species germinate from the imported fill material such that, if not detected and eradicated, the nonnative species could spread to and degrade surrounding ESHA. Any nonnative species inadvertently imported to the area shall be manually eradicated, and monitoring shall continue for as long as needed beyond one year until successful eradication of the nonnative species is confirmed.

ii. The plan shall include, at a minimum, the following

a. Provisions for conducting an updated preconstruction rare plant survey by a qualified botanist of areas adjacent to construction sites documenting the locations of rare plants that will be flagged for avoidance;

b. Provisions for preparing plans and maps depicting where protective/exclusionary fencing will be erected in relation to rare plant and wetland habitats adjacent to construction areas;

c. Provisions for submittal to the Executive Director, within 30 days of completion of construction, maps depicting the locations and quantities of imported backfill material used within dune habitats outside paved roadway areas, if applicable;

d. Provisions for monitoring, if applicable, imported backfill areas by a qualified botanist consistent with subsection (i)(d) above, including a description of removal methods to be employed in the event that nonnative plants introduced to the area from import material are detected during monitoring. Monitoring shall document all plant species present on imported fill, percent cover of each plant species, and any detections of nonnative species that are not known to occur in dune habitats in the region;

e. Provisions for submittal of reports and plans to the Executive Director, including (1) a pre-construction rare plant survey report and exclusionary fencing plans at least two weeks prior to commencement of construction; (2) a report from the qualified environmental monitor within 30 days of completion of construction documenting any observed ESHA or water quality impacts resulting from the project and any noncompliance with the water quality and ESHA protection conditions of the permit; and (3) monitoring reports, if applicable, for imported backfill areas semi-annually (twice per year) for at least one year following completion of construction; and

f. A schedule for the pre-construction rare plant survey, for flagging rare plant habitat areas for avoidance prior to commencement of construction, for reporting to the

Executive Director pursuant to subsection (e) above, and for environmental compliance monitoring during construction activities.

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.

3. Final Staging and Stockpiling Plans

A. PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY THIS PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, a final plan detailing the locations and sizes of all construction staging areas, storage areas, stockpiling areas, concrete washout areas, contractor employee parking areas, and other construction areas appurtenant to the authorized development. The plan shall demonstrate and include, at a minimum, the following

i. No construction staging, storage, stockpiling, concrete washout, parking, or other areas associated with construction of the authorized development shall be located within wetlands or other environmentally sensitive habitat areas;

ii. Designated areas for construction vehicle or equipment cleaning, fueling, and/or maintenance shall be located at least 100 feet from coastal wetlands and waters, drainage courses, and storm drain inlets and shall be designed to fully contain any spills of fuel, oil, or other contaminants;

iii. Concrete washout areas shall be located at least 100 feet from coastal wetlands and waters, drainage courses, and storm drain inlets and shall be implemented in a manner that controls runoff and prevents leaching to underlying soils;

iv. The limits of such areas shall be depicted on plans and maps provided to the Executive Director at least two weeks prior to commencement of construction; and

v. If necessary, areas shall be flagged or otherwise delineated to ensure that construction activities are contained within designated 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. Abandonment of Existing Techite Pipeline. Within one year of completion of construction, or such additional time as the Executive Director may grant for good cause, the permittee shall submit evidence to the Executive Director demonstrating that the existing Techite pipeline has been formally abandoned in place.

5. Area of Archaeological Significance. (A) If an area of archaeological deposits is discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified archaeological resource specialist shall analyze the significance of the find; (B) A permittee seeking to recommence construction following discovery of the archaeological deposits shall submit a supplementary

archaeological plan for the review and approval of the Executive Director. If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director. If the Executive Director approves the Supplementary Archaeological Plan but determines that the changes therein are not *de minimis*, construction may not recommence until after an amendment to this permit is approved by the Commission.

6. <u>Traffic Management Plan</u>

A. PRIOR TO COMMENCEMENT OF ANY DEVELOPMENT AUTHORIZED BY THIS PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, a final Traffic Management Plan that demonstrates all of the following:

i. Public access to the shoreline shall be maintained throughout the duration of construction activities;

ii. Construction equipment, trucks, and other vehicles associated with the authorized development shall be staged and routed such that congestion on public streets and public parking impacts are minimized; and

iii. Construction staging and parking areas shall not encroach into environmentally sensitive dune habitat 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.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. BACKGROUND AND PROJECT PURPOSE

The impetus for the proposed project is the potential risk of failure of a section of the applicant's domestic water distribution system located on the Samoa Peninsula (North Spit of Humboldt Bay) near the community of Fairhaven approximately two miles west of the City of Eureka. The existing 10,800-foot-long segment of pipeline of concern is composed of Techite, a resin and sand-impregnated, fiberglass-wound pipe that has been found to be susceptible to catastrophic failure resulting from internal deterioration. The existing pipeline was installed in 1971 and has exceeded its expected lifespan compared with other Techite pipelines elsewhere (outside of Humboldt County) that have suffered catastrophic failures within a shorter timeframe. Because Techite in general has been demonstrated over the years to be highly susceptible to failure and difficult to repair (the manufacturer eventually went bankrupt after more than 50 lawsuits were filed against the company following catastrophic failures of pipelines in different areas)[1], and

[1] E.g., see http://www.bizjournals.com/sacramento/stories/2005/11/14/story6.html?page=all.

because the applicant's Techite pipeline segment has experienced leaks in recent years necessitating emergency repairs, the applicant identified the replacement of the faulty pipeline segment as a high priority. A catastrophic failure of the Techite pipeline segment could cause serious environmental damage to the immediate area and would disrupt the domestic water supply to thousands of users in the region. This portion of the District's water distribution system serves approximately 7,400 users, including various general industrial and coastal-dependent industrial properties, residential properties in the community of Fairhaven, and the Coast Guard Station on Humboldt Bay. The subject pipeline segment also ties into the pipeline that runs under the bay and serves as an emergency backup system for the City of Eureka. The applicant has secured a 2.2 million dollar hazard mitigation grant from the Federal Emergency Management Agency to replace the Techite pipeline segment.

B. PROJECT DESCRIPTION

The applicant proposes to construct a new approximately 15,406-foot-long segment of 20-inch polyvinylchloride (PVC) domestic water transmission pipeline and 12-inch PVC distribution pipelines in a new alignment along paved roadways and upland ruderal habitats between the applicant's existing Samoa Terminal Reservoir and the pipeline's Humboldt Bay crossing at Fairhaven (**Exhibits 1-2**). The purpose of constructing the proposed new pipeline in a different alignment than the existing Techite pipeline is to avoid disturbance to environmentally sensitive coastal dune habitats, which occur throughout the length of the existing pipeline alignment. As previously mentioned, the existing pipeline was installed in its current alignment through dune habitats in 1971, prior to CDP requirements. The proposed new alignment is entirely within existing public roadways, road easements, and existing District pipeline easements.

The proposed new pipeline segment would serve as a redundant line to the existing 10,800-ft-long segment of 18-inch Techite pipeline for an unspecified time period until the Techite line is abandoned in place in the future. Abandonment of the existing Techite line will involve closing valves, cutting, and plugging with concrete the ends of the existing line and cutting and plugging each lateral pipe originating from the line to service customers. The applicant has proposed using the existing Techite line in tandem with the new PVC pipeline segment to serve as a redundant line for an unspecified time period. The stated advantages of the proposed redundant waterline include (1) energy (and associated cost) savings on the Humboldt Community Services District pumps located in Eureka where the water line enters the city from its bay crossing, since the redundant pipeline would allow water entering the pumps to arrive at a higher pressure, thereby requiring less energy to boost the water to distribution lines to HCSD customers; and (2) redundancy in the water transmission line system in the event that either the existing pipeline or proposed new pipeline breaks or fails for any reason, a backup line would be in place.

Construction of the new pipeline would involve traditional open trenching and jack and bore methods. Tracked excavators and wheeled backhoes would excavate 3-ft-wide by 3-ft-deep trenches. The new pipe would be bedded and backfilled with material primarily from onsite (reuse of excavated material), but import of clean material may also be needed (source not yet identified; to be determined by contractor). All public and private paved or gravel roadways impacted by trenching would be repaired to original condition, including backfill, grading, compaction, and repaving. Jack and bore technology would be utilized for pipeline installation in

limited areas where traditional trenching is not feasible, such as crossing under a large box culvert on New Navy Base Road.

The north and south ends of the proposed new pipeline would intertie with existing water mains, with the northern end tying into an existing 15-inch concrete-lined steel pipe near the District's Samoa Terminal Reservoir and the southern end tying into a 27-inch steel pipe in Fairhaven near the line's Humboldt Bay crossing. Additionally, 4-inch and 6-inch PVC pipes providing domestic water to Fairhaven, the Fay Street area, and other connections to the south would be connected to the new pipe as needed. Appurtenant pipeline-related components such as hydrants, air releases, and valves also would be constructed along the proposed new pipeline as appropriate. **Exhibit 3** includes a complete set of proposed plans.

C. ENVIRONMENTAL SETTING

The project area is an approximately 2-mile-long right-of-way between the District's existing Terminal Reservoir on the Samoa Peninsula (North Spit of Humboldt Bay) and the unincorporated community of Fairhaven. The majority of construction activities would occur within existing paved County roadways, including New Navy Base Road, which is the main thoroughfare on the North Spit, as well as Lincoln Avenue and Duprey Street in Fairhaven. Some development, such as the installation of air release valves and hydrants, would occur adjacent to paved roadways within previously disturbed upland habitats (**Exhibits 4-5**).

Most areas of the North Spit outside of paved and developed areas contain environmentally sensitive dune habitats, including rare plant habitat, dune mat, dune wetlands, forested dunes, and other types of ESHA. A population of Humboldt Bay wallflower (*Erysimum menziesii* ssp. *eurekense*), a federally and state-endangered species known only from coastal dunes around Humboldt Bay,[2] occurs adjacent to the proposed project area (approximately 15 feet from the proposed new pipeline alignment and 36 feet from one of the proposed new air release valves). In addition, dune mat and palustrine wetlands occur immediately adjacent to the proposed new pipeline and ARVs at various points along the length of the pipeline alignment. The project does not propose any new development within any ESHA.

D. STANDARD OF REVIEW

The project area is bisected by the boundary between the retained CDP jurisdiction of the Commission and the CDP jurisdiction delegated to Humboldt County by the Commission through the County's LCP. Most of the proposed project area is within the County's CDP jurisdiction. The portions of the project area within the Commission's retained jurisdiction are limited to the southern end of the pipeline segment at the end of Dupree Street in Fairhaven near the pipeline's bay crossing.

Section 30601.3 of the Coastal Act authorizes the Commission to process a consolidated coastal development permit application when requested by the local government and the applicant and

[2] This wallflower subspecies is no longer recognized as a valid taxon in the most recent taxonomic treatment of *E. menziesii* in the second edition of The Jepson Manual (Baldwin et al., eds., 2012). Nevertheless, the U.S. Fish and Wildlife Service (FWS) continues to recognize the subspecies as distinct, and both the FWS and the California Department of Fish and Wildlife have listed *E. menziesii*, including any subspecies and distinct populations within the species, as endangered under the Federal and California Endangered Species Acts, respectfully.

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 applicant 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.

E. PROTECTION OF ESHA AND WATER QUALITY

Section 30240 of the Coastal Act states as follows:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall 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.*

Section 30230 of the Coastal Act states as follows:

> *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.*

Section 30231 of the Coastal Act 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 for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232 of the Coastal Act states as follows:

> *Protection against the spillage of crude oil, gas, petroleum products or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

The project as proposed does not propose any new development within any ESHA. The majority of the new pipeline will be installed within existing paved roadway areas. The applicant's consultant completed an ESHA analysis for areas adjacent to the construction alignment and for those areas off-pavement adjacent to the roadway proposed for pipeline appurtenances, including new air release valves (ARVs), blow-off assemblies, and fire hydrants. The applicant determined through analyzing the soils in these areas and reviewing original plans for the construction of New Navy Base Road and Lincoln Avenue in 1969, that all proposed appurtenances not within paved sections of roadway will be located in areas underlain by roadway fill material (**Exhibit 5**).

Although the development will not encroach directly into ESHA, the project involves construction activities, including trenching and boring using heavy equipment, excavation/backfilling and stockpiling of soils and construction materials, and the use of concrete, asphalt, paving materials, paint, and other hazardous substances in close proximity to coastal waters, wetlands, Humboldt Bay wallflower habitat, dune mat, and other environmentally sensitive habitat areas. Due to the proximity of the project area directly adjacent to ESHA and coastal waters, there is potential for the proposed development to adversely impact adjacent ESHA, water quality, and/or marine resources. Unless appropriate protocols are followed, the proposed development could result in sediments or other pollutants entering coastal waters, improper storage of equipment and materials in or adjacent to ESHA and the bay, accidental leaks or spills of coolants, petroleum products, and other hazardous substances in close proximity to marine waters and/or ESHA, and other activities that could disrupt ESHA functions and values or adversely impact water quality and marine resources.

The applicant has proposed various mitigation measures as part of the proposed project to avoid or minimize potential ESHA and water quality impacts. These measures include, but are not limited to, the following: (1) the use of various erosion control measures (e.g., dust control, use of fiber rolls or similar products for runoff control, storm drain inlet protection, designating a concrete washout area), (2) preparation and implementation of a Stormwater Pollution Prevention Plan in compliance with State Water Resources Control Board Order No. 2009-0009-DWQ (general waste discharge requirements for discharges of stormwater runoff associated with construction and land disturbance activities), and (3) appropriate reuse, retention, or discharge of groundwater that may be encountered during construction. In addition, the CEQA document adopted for the project identified various mitigation measures as appropriate to minimize potential project impacts to a less than significant level, including, but not limited to, the following (see for all proposed measures): (a) placement of construction exclusion fencing between construction areas and wallflower habitat areas; (b) protection and avoidance of wetlands, using exclusion fencing where needed to prevent disturbance; and (c) implementation of various specified water quality protection BMPs. Furthermore, the plans proposed for the project include various environmental notes for the contractor to follow, such as requiring that construction equipment avoid designated sensitive habitats, that staging and storing areas not be

located within wetlands or ESHA, and that the contractor prepare and implement a spill prevention and response plan requiring in part that all staging, storage, and refueling areas and equipment repair areas be located at least 100 feet from wetlands, waters, and ESHA (see **Exhibit 3**).

The Commission finds that while the above measures are appropriate, in some cases they do not go far enough or include enough detail to ensure that the water quality and habitat protection standards of Sections 30240, 30230, 30231, and 30232 are met. For example, the applicant proposes that the contractor identify and establish construction staging and storage areas (other than the one staging area that the applicant has proposed adjacent to the District's Terminal Reservoir) that avoid locating such areas within 100 feet of wetlands, waters, and ESHA. However, the contractor may not have the expertise to identify the locations and boundaries of all types of wetlands and ESHA that may be present in the project vicinity, in which case the development of these areas for temporary construction-related uses potentially could result in encroachment into ESHA inconsistent with the requirements of Section 30240(a) of the Coastal Act that only resource-dependent uses be allowed within ESHA. In addition, as proposed, imported backfill material may be used around structures (e.g., ARVs and hydrants) in dune habitats outside of paved roadway areas. However, the proposed project does not include measures to ensure that the use of imported material is minimized and does not result in the introduction of nonnative species inappropriate to the dune environment, which could invade surrounding ESHA and degrade the habitat areas. Thus, to ensure that (1) the proposed development adjacent to ESHA will be sited and designed to prevent impacts which would significantly degrade those areas and be compatible with the continuance of those habitat areas, (2) water quality will be protected, and (3) the project will adequately provide for the protection against the spillage of petroleum products or other hazardous substances consistent with Sections 30240(b), 30230, 30231, and 30232 of the Coastal Act, the Commission attaches Special Conditions 1 through 3, as detailed below.

Special Condition 1 specifies various construction responsibilities required for the project to protect water quality and environmentally sensitive habitat areas located around construction work areas. The condition requires that the applicant submit evidence to the Executive Director, prior to commencement of development, demonstrating that the various required measures have been incorporated into the final construction plans, Stormwater Pollution Prevention Plan (SWPPP), and erosion and sediment control plans for the project.

Special Condition 2 requires submittal of an ESHA protection plan prior to permit issuance for the Executive Director's review and approval. The plan must demonstrate that (a) a qualified botanist will flag for protection/exclusion all rare plant and wetland habitat areas adjacent to construction work areas prior to commencement of construction, (b) a qualified environmental monitor familiar with ESHA in the project vicinity will be onsite daily to ensure contractor compliance with the environmental protection requirements of this permit, (c) the project will avoid or minimize the use of imported backfill material in dune habitats outside paved roadway areas, and if import material is used, the material will be free of nonnative plants and insects; and (d) a qualified botanist will monitor areas where imported backfill is placed in dune habitats to ensure that no invasive or other species inappropriate to the area germinate from the imported fill material and degrade surrounding ESHA.

Special Condition 3 requires submittal of a final plan detailing the locations and sizes of all construction staging areas, storage areas, stockpiling areas, concrete washout areas, contractor employee parking areas, and other construction areas appurtenant to the authorized development. The plan must demonstrate in part that (1) no construction staging, storage, stockpiling, concrete washout, parking, or other areas associated with construction of the authorized development will be located within wetlands or other environmentally sensitive habitat areas; and (2) designated areas for construction vehicle or equipment cleaning, fueling, and/or maintenance and concrete washout areas will be located at least 100 feet from coastal wetlands and waters.

As discussed in the Project Description finding above, the applicant has proposed that the new PVC pipeline segment serve as a redundant line in tandem with the existing Techite line for an unspecified time period. The stated advantages of the proposed redundant waterline include (1) energy (and associated cost) savings on the Humboldt Community Services District pumps located in Eureka where the water line enters the city from its bay crossing, since the redundant pipeline would allow water entering the pumps to arrive at a higher pressure, thereby requiring less energy to boost the water to distribution lines to HCSD customers; and (2) redundancy in the water transmission line system in the event that either the existing pipeline or proposed new pipeline breaks or fails for any reason, a backup line would be in place.

The Commission finds that leaving the existing faulty Techite pipeline in place as a redundant line indefinitely could result in significant disruption of habitat values to environmentally sensitive dune habitats located along the length of the existing pipeline alignment. A 2012 ESHA survey of the existing pipeline alignment identified rare plant habitat, dune mat, wetland and riparian habitat, and other types of environmentally sensitive dune habitats along the length of the pipeline, which was installed in 1971. Because Techite in general has been demonstrated over the years to be highly susceptible to failure, and because the applicant's Techite pipeline segment has experienced leaks in recent years necessitating emergency repairs, the applicant has stated that the existing pipeline has already exceeded its lifespan and is "on borrowed time." It's difficult to predict how much disruption to dune ESHA a catastrophic failure of the existing pipeline would cause, as the significance of ESHA disruption would depend on various factors such as the location of the failure point, the duration of water flow into the failed pipe before valves could be shut, and the weather. However, the applicant indicates that it's entirely feasible that a catastrophic failure of the Techite pipeline segment would cause serious environmental damage to the immediate area, including the potential release of 100,000 gallons or more of water potentially causing a 20-foot-diameter, 8-ft-deep (or larger) sink hole and additional perimeter runoff and erosion impacts. To protect environmentally sensitive habitat areas that are located above the existing Techite pipeline against significant disruption of habitat values that could result from the anticipated future failure of the pipeline, the Commission attaches **Special Condition 4**. This condition requires that within one year of completion of construction, or such additional time as the Executive Director may grant for good cause, the permittee shall submit evidence to the Executive Director demonstrating that the existing Techite pipeline has been formally abandoned in place. As discussed in the Project Description finding above, abandonment of the Techite line involves closing valves, cutting, and plugging with concrete the ends of the existing line and cutting and plugging each lateral pipe originating from the line to service customers.

Therefore, the Commission finds that as conditioned to include the mitigation measures discussed above, the project will be carried out in a manner that (1) will sustain the biological productivity of coastal waters and marine resources consistent with Coastal Act Sections 30230, 30231, and 30232, and (2) will not significantly degrade adjacent ESHA and will be compatible with the continuance of adjacent environmentally sensitive areas.

F. EXPANDED PUBLIC WORKS FACILITIES

Coastal Act Section 30254 states, in applicable part:

> *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… Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with 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.*

The project area is located in an area designated as rural under the County's certified land use plan (Humboldt Bay Area Plan).

Coastal Act Section 30254 states in part that public works facilities may be expanded only if they have been designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions the Coastal Act. As proposed, the project does not represent an expansion of a public works facility because it will replace a segment of an existing pipeline with a new segment of pipeline of the same size and capacity. Although there will be up to a one-year period when both the old and new segments of pipeline will be operational, this is only temporary to prevent interruption in service while the new pipeline is made operational and tested. Although the new segment of pipeline follows a different alignment to avoid disturbance of ESHA, the new alignment still is within the District's service area and will not facilitate the provision of new water hookups for new users. Thus the project does not constitute an expansion of a public works facility. As discussed above, **Special Condition 4** ensures that the existing Techite pipeline will be formally abandoned in place within one year of completion of construction. In addition to guarding against impacts to ESHA from a catastrophic failure of the existing pipeline segment, the condition will ensure that the old segment of pipeline does not remain in service indefinitely and have growth-inducing effects.

Section 30254 also directs that in cases of limited public works facilities availability, priority should be given to certain classes of development and uses over other forms of development, specifically "*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*." The Commission finds that the new water pipeline will replace an existing water pipeline in kind, and thus will not preclude services to other essential and priority

types of development. Furthermore, as conditioned to include the various water quality and ESHA protection measures described above, the proposed new water pipeline will be designed limited to accommodate needs generated only by development or uses permitted consistent with the provisions of this division.

Finally, Coastal Act Section 30254 prohibits new and expanded public works facilities from inducing development inconsistent with the Coastal Act. Such inconsistent development could include the inducement of premature or discontinuous growth patterns in an area, facilitated by an extension of sewer and water lines to the area, and the development of adjacent environmentally sensitive lands that would otherwise be infeasible to develop for a lack of such services. As discussed above, the pipeline segment replacement will not increase the capacity to serve additional users and will not be extended outside the existing service area of the District. Therefore, the Commission finds that the proposed development will not result in growth-inducing impacts inconsistent with Coastal Act policies.

Therefore, the Commission finds the proposed project, as conditioned, is consistent with Section 30254 of the Coastal Act.

G. ARCHAEOLOGICAL RESOURCES

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

Coastal Act Section 30244 provides protection of archaeological and paleontological resources and requires reasonable mitigation where development would adversely impact such resources.

The project area is located within the traditional territory of the Wiki division of the Wiyot Tribe. The tribe is understood to have been composed of three tribal divisions (Patawat, Wiki, and Wiyot), each associated with a water-related resource (the Mad River, Humboldt Bay, and the lower Eel River, respectively) and each speaking a common language (Selateluk). Settlements existed all around Humboldt Bay and along the banks of many of the streams and sloughs in this area.

According to the CEQA document completed for the project, an extended Phase I archaeological investigation was conducted by Roscoe and Associates (RA) in August of 2011. While the CDP application now proposes to install the new pipeline in a different alignment along existing roadways, the archaeological investigation remains generally relevant to the proposed project area. In addition to the RA study, an additional archaeological study of the area also was completed by URS in 2011.

Although a records search completed for the area identified no known surveys or recorded resources for the area, it is believed that there is a "high to moderate probability of finding sites or other evidence of human cultural activity in the project area," according to the North Coastal

Information Center. The RA study yielded evidence of shell deposits and other artifacts in the vicinity of the project site in an area not proposed for disturbance. Since the project area is predominantly within developed and disturbed areas, it is unlikely that the proposed project will disturb any cultural or archaeological artifact. Nevertheless, given the extent of excavation proposed, it's possible that undiscovered archaeological resources may be inadvertently unearthed during construction activities. The Commission includes **Special Condition 5** to require that if an area of cultural deposits is discovered during the course of the project, all construction shall cease and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the applicant is required to submit a supplementary archaeological plan for the review and approval of the Executive Director to determine whether the changes are de minimis in nature and scope or whether an amendment to this permit is required.

Thus, as conditioned to include reasonable mitigation, the Commission finds that the project is consistent with Coastal Act Section 30244.

H. PUBLIC ACCESS

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 of the Coastal Act requires that access from the nearest public roadway to the shoreline be provided in new development projects, except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or where adequate access exists nearby. Section 30211 of the Coastal Act requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 of the Coastal Act provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, 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 access.

The project will temporarily (during construction activities) affect traffic volumes or patterns along public roadways that lead to public beaches and access points along the ocean and Humboldt Bay. The affected roadways include New Navy Base Road, the primary road providing vehicular access up and down the Samoa Peninsula. Construction activities within roadways, including trenching, pipe installation, backfilling, compaction, paving, and jack and boring will require temporary lane realignment and possibly intermittent controlled one-way traffic or lane closures. Despite these temporary traffic impacts, the proposed project will not adversely affect public access given the availability of alternate routes along neighboring streets. To ensure that alternate routes remain open and accessible to the public throughout construction, the applicant intends to implement a traffic control plan to ensure that detours are clearly indicated and traffic flow is maintained. As described in the CEQA document (mitigation measure TR-1), the plan will include in part the locations of designated construction staging areas for equipment/materials storage and construction worker parking, temporary replacement parking during the construction period, as needed/required, detour routes to be used to maintain access throughout the area during construction, and other details. To ensure that public access to

the coast is indeed maintained as proposed throughout the duration of project construction, and to ensure that staging/storage areas and replacement parking areas developed in the plan as proposed do not encroach onto adjacent dune ESHA, the Commission includes **Special Condition 6.** This condition requires that the applicant prepare and submit a Traffic Control Plan as proposed, which must demonstrate, at a minimum that (1) public access to the shoreline shall be maintained throughout the duration of construction activities, (2) construction equipment, trucks, and other vehicles associated with the authorized development shall be staged and routed such that congestion on local streets and public parking impacts are minimized, and (3) construction staging and parking areas shall not encroach into environmentally sensitive dune habitat areas.

Therefore, the Commission finds that the project, as conditioned, is consistent with the requirements of Coastal Act Sections 30210, 30211, and 30212.

I. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The applicant served as the lead agency for the project for CEQA purposes. The District's Board approved a Mitigated Negative Declaration for the project on June 13, 2013 (SCH No. 2013052022) and filed a Notice of Determination on June 14 in compliance with PRC Sec. 21108 or 21152.

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.

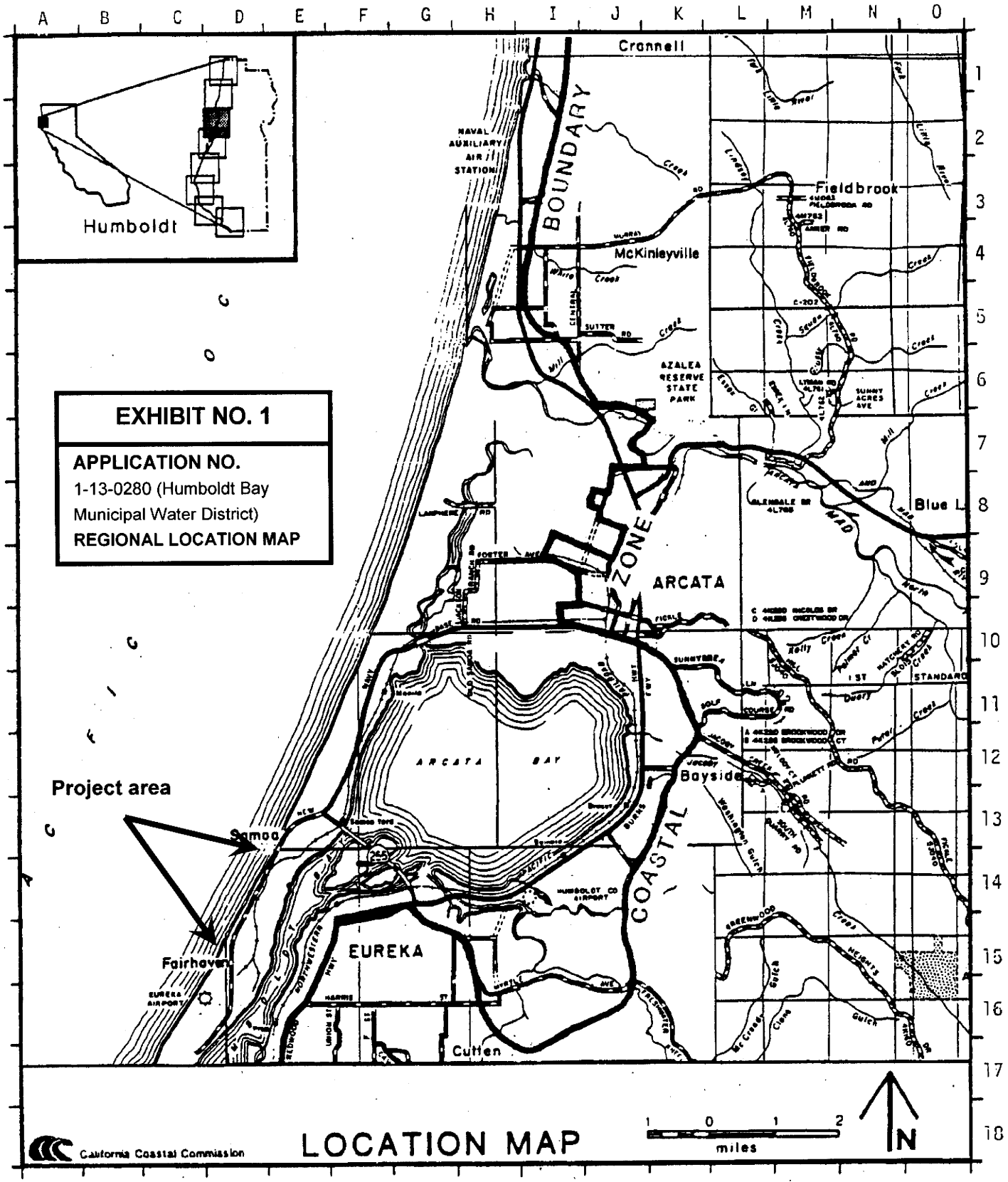
The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. The findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As 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 to conform to CEQA.

APPENDIX A
SUBSTANTIVE FILE DOCUMENTS

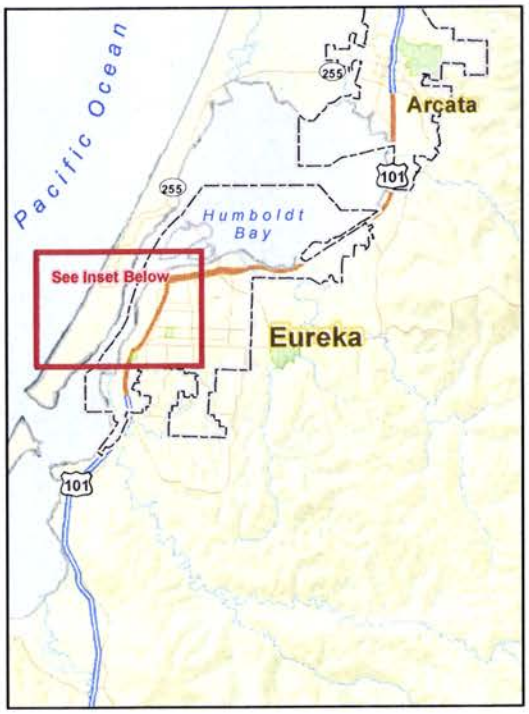
Application File for Coastal Development Permit No. 1-13-0280

Initial Study and Draft Mitigated Negative Declaration dated April 2013, adopted June 2013 (SCH No. 2013052022)

County of Humboldt Local Coastal Program



County of Humboldt



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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:gkgarrison

EXHIBIT NO. **2**

APPLICATION NO.

1-13-0280 (Humboldt Bay Municipal Water District)

VICINITY MAP

Number 0105511012
evision A
Date 22 Aug 2012

as Figure 1

ghd.com W www.ghd.com

cept liability
the map being inaccurate,

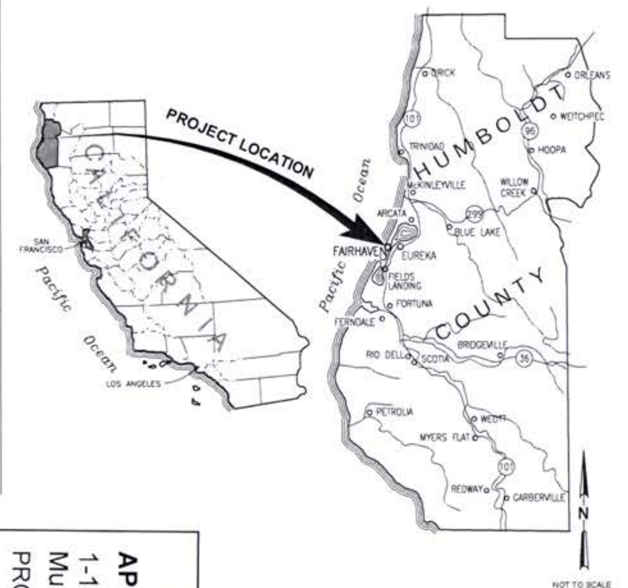
HUMBOLDT BAY MUNICIPAL WATER DISTRICT

TECHITE PIPELINE REPLACEMENT PROJECT
SEPTEMBER 2013

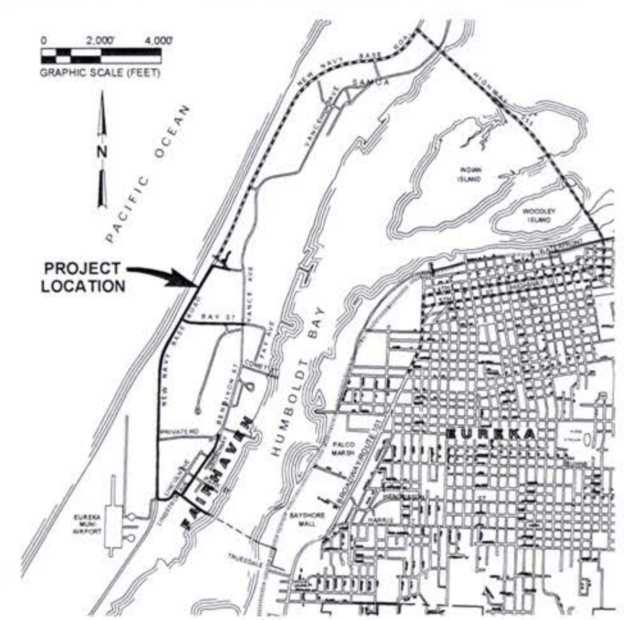
PREPARED BY

GHD

AREA MAP



LOCATION MAP



APPROVALS

PLANS AND SPECIFICATIONS APPROVED BY THE BOARD OF DIRECTORS OF THE HUMBOLDT BAY MUNICIPAL WATER DISTRICT, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA, THIS ____ DAY OF __________, 2013.

GENERAL MANAGER
CAROL RISCHE ________ SIGNED

BOARD OF DIRECTORS

ALDARON LAIRD	PRESIDENT
BARBARA HECATHORN	VICE PRESIDENT
J. BRUCE RUPP	SECRETARY-TREASURER
KAITLIN SOPOCI-BELKNAP	DIRECTOR
SHERI WOO	DIRECTOR

ENGINEER: GHD Inc.
PATRICK KASPARI ________ SIGNED

100% SUBMITTAL NOT FOR CONSTRUCTION

Revision of drawing	Drawn	Job Manager	Project Director	Date

Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110120001.dwg

DRAFT (Registered Professional Engineer stamp, Civil, State of California)

GHD Inc.
718 Third Street Eureka California 95501 USA
T 1 707 443 8326 F 1 707 444 8330
W www.ghd.com

Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	COVER SHEET
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: G001

Sht 1 of 35
Rev:

EXHIBIT NO. **3**

APPLICATION NO.

1-13-0280 (Humboldt Bay Municipal Water District)

PROJECT PLANS (1 of 35)

SHEET INDEX:

SHEET NO.	DRAWING DESIGNATION	DESCRIPTION
GENERAL		
1	G001	COVER SHEET
2	G002	SHEET INDEX, SYMBOLS & ABBREVIATIONS
3	G003	GENERAL, ENVIRONMENTAL & SURVEY NOTES
4	G101	OVERALL SITE PLAN & PLAN/PROFILE INDEX - 1 OF 2
5	G102	OVERALL SITE PLAN & PLAN/PROFILE INDEX - 2 OF 2
6	G103	HORIZONTAL CONTROL - 1 OF 2
7	G104	HORIZONTAL CONTROL - 2 OF 2
CIVIL SITE		
8	C101	PLAN & PROFILE TRANSMISSION MAIN - STA 1+00 TO STA 10+00
9	C102	PLAN & PROFILE TRANSMISSION MAIN - STA 10+00 TO STA 20+00
10	C103	PLAN & PROFILE TRANSMISSION MAIN - STA 20+00 TO STA 30+00
11	C104	PLAN & PROFILE TRANSMISSION MAIN - STA 30+00 TO STA 40+00
12	C105	PLAN & PROFILE TRANSMISSION MAIN - STA 40+00 TO STA 51+00
13	C106	PLAN & PROFILE TRANSMISSION MAIN - STA 51+00 TO STA 60+00
14	C107	PLAN & PROFILE TRANSMISSION MAIN - STA 60+00 TO STA 70+00
15	C108	PLAN & PROFILE TRANSMISSION MAIN - STA 70+00 TO STA 80+00
16	C109	PLAN & PROFILE TRANSMISSION MAIN - STA 80+00 TO STA 90+00
17	C110	PLAN & PROFILE TRANSMISSION MAIN - STA 90+00 TO STA 100+00
18	C111	PLAN & PROFILE TRANSMISSION MAIN - STA 100+00 TO END
CIVIL SITE (CONTINUED)		
19	C112	PLAN & PROFILE VANCE AVE - STA 1+00 TO END & CONNECTION DETAIL
20	C113	PLAN & PROFILE BAY ST - STA 1+00 TO STA 10+00
21	C114	PLAN & PROFILE BAY ST - STA 10+00 TO END
22	C115	PLAN & PROFILE LINDSTROM AVE - STA 1+00 TO STA 10+00
23	C116	PLAN & PROFILE LINDSTROM AVE - STA 10+00 TO STA 20+00
24	C117	PLAN & PROFILE LINDSTROM AVE - STA 20+00 TO END
CIVIL DETAILS		
25	C401	YARD PIPING & CONNECTION DETAIL AT TERMINAL RESERVOIR
26	C402	CONNECTION DETAIL - LINCOLN AVE & DUPREY ST CONNECTION DETAILS - BAY ST TO DG POWER
27	C403	CONNECTION DETAIL 1 - FAIRHAVEN
28	C404	CONNECTION DETAIL 2 - FAIRHAVEN
29	C405	CONNECTION DETAIL - LINDSTROM AVE AND DUPREY ST CONNECTION DETAIL - TRANSMISSION MAIN END
30	C406	LINDSTROM AVENUE CROSS SECTIONS - UNDERGROUND PIPING
31	C501	TRENCH & THRUST BLOCKS DETAILS
32	C502	VALVES & FIRE HYDRANT DETAILS
33	C503	MANHOLE & AIR VALVE DETAILS - 1 OF 2
34	C504	MANHOLE & AIR VALVE DETAILS - 2 OF 2
35	C505	BLOW-OFF ASSEMBLY DETAILS

SYMBOLS:

BOUNDARY &/OR TOPOGRAPHIC:

NEW	EXISTING	DESCRIPTION
		TREE (AS NOTED)
	BOL	BOLLARD/PADDLE MARKER
		FOUND RECORD SURVEY MONUMENT
		CORNER SEE NOTES SHT V101
		SURVEY CONTROL POINT

UTILITY

NEW	EXISTING	DESCRIPTION
	PP — GUY	POWER POLE WITH GUY ANCHOR
	BCL	BURRIED CABLE PADDLE
	GM	GAS METER
	EV	ELECTRICAL VAULT OR PANEL
	DI	STORM DRAINGE INLET/CATCH BASIN
	MH	MANHOLE AS NOTED

WATER SYSTEM

NEW	EXISTING	DESCRIPTION
	WLP	WATER LINE PADDLE
	WM	WATER METER
FH	FH	FIRE HYDRANT
BV	BV	BUTTEFLY VALVE
GV	GV	GATE VALVE
PV	PV	PLUG VALVE
ARV	ARV	AIR VACUUM/RELEASE VALVE
	BO	BLOW OFF
		REDUCER
		PIPELINE TEE
		PIPELINE ELBOW
		BACKFLOW PREVENTER
		WATER LINE TO BE ABANDONED
OR		COUPLING

ABBREVIATIONS:

AB	ANCHOR BOLT, AGGREGATE BASE
AC	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
ADD	ADDITIONAL
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ALIGN	ALIGNMENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APN	ASSESSOR'S PARCEL NUMBER
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AR	AIR VALVE
ARV	AIR VACUUM RELEASE
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BCP	BURRIED CABLE PADDLE
BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACK FLOW PREVENTER
BFG	BELOW FINISH GRADE
BLDG	BUILDING
BM	BENCH MARK, BEAM
BMPS	BEST MANAGEMENT PRACTICES
BO	BLOW OFF (VALVE)
BOL	BOLLARD
BOT	BOTTOM
BPMS	BEST PRACTICE MANAGEMENT SYSTEM
BSW	BACK OF SIDEWALK
BV	BUTTERFLY VALVE BALL VALVE
BVC	BEGINNING OF VERTICAL CURVE
BW	BACKWASH
C	CHANNEL (BEAM)
CB	CATCH BASIN
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CIP	CAST IRON PIPE
CIRJ	CAST IRON RESTRAINED JOINT
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL	CHLORINE
CLR	CLEAR
CMLSP	CEMENT MORTAR LINED STEEL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONT	CONTINUOUS, CONTINUATION
COORD	COORDINATE
COP	COPPER
CPLG	COUPLING
CST	CST NAIL
CTD	CENTERED
CTR	CENTER
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
CV	CHECK VALVE
DR	DRAIN
DBL	DOUBLE
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DN	DOWN
DW	DRIVEWAY
DWG	DRAWING
E	EAST
EA	EACH
EC	END CURVE
EF	EACH FACE, EXHAUST FAN
EFFL	EFFLUENT
EG	EXISTING GROUND
EL	ELEVATION
ELB, EL	ELBOW
ELEC	ELECTRIC, ELECTRICAL
ENGR	ENGINEER
EQ	EQUAL
EQ SP	EQUALLY SPACED
EQPT	EQUIPMENT
ESHA	ENVIRONMENTALLY SENSITIVE HABITAT AREA
EV	ELECTRICAL VAULT
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EXC	EXCAVATE
EXP	EXPOSED, EXPANSION
EXP JT	EXPANSION JOINT
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FIG	FIGURE
FILT	FILTER, FILTERED
FL	FLOOR, FLOW LINE
FLG	FLANGED
FLTR	FILTER
FOC	FACE OF CONCRETE
FT	FOOT OR FEET
FTG	FOOTING
FWD	FORWARD
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GC	GROOVED COUPLING
GCF	GROOVED COUPLING FITTING
GE	GROOVED END
GL	GLASS
GM	GAS METER
GPM	GALLONS PER MINUTE
GSM	GALVANIZED SHEET METAL
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GVL	GRAVEL
HCR	HUMBOLDT COUNTY RECORDS
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDW	HARDWARE
HGT	HEIGHT
HORZ	HORIZONTAL
HP	HORSEPOWER, HIGH POINT
HR	HANDRAIL
HV	HOSE VALVE, HIGH VOLTAGE
I&C	INSTRUMENTATION & CONTROL
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFL	INFLUENT
INV	INVERT
IP	IRON PIPE
JP	JUNCTION POLE
JT	JOINT
KIP	THOUSAND POUNDS
KW	KILOWATT
L	LEFT, LENGTH
LAB	LABORATORY
LB	POUNDS
LF	LINEAR FEET
LG	LONG, LIP OF GUTTER
LH	LEFT HAND
LONG	LONGITUDINAL
LR	LONG RADIUS
MAX	MAXIMUM
MB	MACHINE BOLT
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MFMWS	MYERS FLAT MUTUAL WATER SYSTEM (INC.)
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLCS	MORTAR LINED & CONCRETE STEEL
MON	MONUMENT
MSNRY	MASONRY
MTL	MATERIAL
MWS	MAXIMUM WATER SURFACE
N	NORTH
(N)	NEW
NIC	NOT IN CONTRACT
NO	NUMBER, NUMBERING
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
OF	OUTSIDE FACE, OVERFLOW
OG	ORIGINAL GROUND
OPNG	OPENING
OR	OFFICIAL RECORDS
OZ	OUNCE
PE	PERMANENT EASEMENT
PL	PLASTIC, PROPERTY LINE
POC	POINT OF CONNECTION
PP	POWER POLE
PPM	PARTS PER MILLION
PRCST	PRECAS
PREFAB	PREFABRICATED
PRESS	PRESSURE
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE PLASTIC
PVMT	PAVEMENT
R, RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RDCR	REDUCER
REF	REFER, REFERENCE
REINF	REINFORCED, REINFORCING, REINFORCE
REQD	REQUIRED
ROW	RIGHT OF WAY
RST	REINFORCING STEEL
RTN	RETURN
RW	RAW WATER
S	SOUTH, SHINER
SCFH	STANDARD CUBIC FEET PER HOUR
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SPEC	SPECIFICATIONS
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL, STEEL PIPE
STR	STRAIGHT
STRUCT	STRUCTURE
T	TANGENT
T&B	TOP AND BOTTOM
TBG	TUBING
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE
TF	TOP FACE
THD	THREAD
THK	THICK
TP	TELEPHONE POLE
TR	TELEPHONE RISER
TT	THRUST TIE
TW	TOP OF WALL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UG	UNDERGROUND
UNK	UNKNOWN
UNO	UNLESS NOTED OTHERWISE
V	VENT, VOLT, VALVE
VAC	VACUUM
VC	VERTICAL CURVE
VERT	VERTICAL
W	WATER
W/	WITH
WM	WATER METER
WP	WATERPROOF
WR	WATER RESISTANT
WS	WATER SURFACE, WATER STOP
WSP	WELDED STEEL PIPE
WTR	WATER
WLP	WATER LINE PADDLE
WTL	WATER TRANSMISSION LINE
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER
XING	CROSSING
YD	YARD
&	AND
@	AT
°F	DEGREES FAHRENHEIT
Ø	DIAMETER
℄	CENTER LINE
⅊	PROPERTY LINE, PLATE
(E)	EXISTING
(N)	NEW
W/	WITH

LEGEND:

BOUNDARY &/OR TOPOGRAPHIC:

NEW	EXISTING	DESCRIPTION
		PROPERTY LINES
		RIGHT-OF-WAY CENTERLINE
		EASEMENT SIDELINES
		SECTION LINE
		ASPHALT PAVEMENT
		GRAVEL ROADWAY
		FENCE LINE
		VEGETATION
		TOP OF SLOPE
		TOE OF SLOPE / GRADE BREAK
10, 8	40	TOPOGRAPHIC CONTOURS
		ENVIRONMENTALLY SENSITIVE HABITAT AREA
		STRIPING

UTILITY:

NEW	EXISTING	DESCRIPTION
	G	UNDERGROUND GAS LINE
	OHE	OVERHEAD ELECTRIC LINES
	OHT	OVERHEAD TELEPHONE LINE
	OHE&T	OVERHEAD ELECTRIC AND TELEPHONE
	UGT	UNDERGROUND TELECOM/TELEMETRY LINE
W	W	WATER LINE (SIZE & TYPE AS NOTED)
	18" TEC	EXISTING 18" TECHITE PIPELINE
20" PVC W	18" TECHITE W	PIPE CALLOUT
	SD	STORM DRAIN PIPE

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date

Plot Date: 10 October 2013 - 2:34 PM Plotted by: Yeash Tifen Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110G002.dwg

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Drawn: SJD/YT	Designer: YT		
Drafting Check: PK	Design Check: PK		
Approved (Project Director)			
Date			
Scale: NONE	This Drawing shall not be used for Construction unless Signed and Sealed For Construction		

Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **SHEET INDEX, SYMBOLS & ABBREVIATIONS**
Contract No. 01055-11-012
Original Size: **Ansi D** **Drawing No: G002**
Sht 2 of 35 **Rev:**

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS IN ADVANCE OF ANY PLANNED EXCAVATION (800 227-2600).
2. THE LOCATIONS AND SIZES OF BURIED UTILITIES SHOWN ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION FROM THE UTILITY OWNERS, AND SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING UTILITIES AFFECTED BY WORK UNDER THIS CONTRACT. IF ACTUAL CONDITIONS VARY FROM WHAT IS INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND WAIT FOR DIRECTION BEFORE PROCEEDING. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SUPPORT AND PROTECTION AGAINST DAMAGE FOR ALL EXISTING UTILITIES.
3. THE CONTRACTOR SHALL OBTAIN A TRENCH SAFETY PERMIT FROM THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO EXCAVATION OF ANY TRENCH GREATER THAN 5-FEET DEEP.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATE OFF-SITE DISPOSAL OF ALL REMOVED OR DEMOLISHED CONSTRUCTION WASTE INCLUDING BUT NOT LIMITED TO ALL NON-REUSED BITUMINOUS PAVEMENT, CONCRETE, REINFORCEMENT, AND SPOILS AS REQUIRED BY THE ENGINEER AND PER SPECIFICATIONS.
5. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR WORKING CONDITIONS ON THE JOB SITE INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK, INCLUDING OUTSIDE OF NORMAL WORKING HOURS. EXCAVATIONS AND CONFINED SPACE ENTRIES SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF CAL/OSHA TITLE 8.
6. EXISTING CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, RAMPS, TRAFFIC ISLANDS, MEDIANS, MONUMENTS, PAVING, BRIDGES AND ALL OTHER EXISTING IMPROVEMENTS THAT ARE REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS AND STANDARD SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THE IMPROVEMENTS. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO MATCH PRE-CONSTRUCTION CONDITIONS OR BETTER AFTER COMPLETION OF THE PROJECT.
7. ALL LANDSCAPING AND IRRIGATION SYSTEMS OR OTHER PRIVATE IMPROVEMENTS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED IN KIND OR AS DIRECTED BY THE ENGINEER.
8. EXISTING SHRUBBERY AND TREES SHALL BE REMOVED OR TRIMMED ONLY AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE DISTRICT REPRESENTATIVES HARMLESS FROM ANY AND ALL LIABILITY, REAL AND/OR ALLEGED, IN CONJUNCTION WITH THE PERFORMANCE OF THIS PROJECT.
9. ANY MONUMENT OR BENCHMARK THAT IS DISTURBED OR DESTROYED SHALL BE REESTABLISHED AND REPLACED BY A LICENSED LAND SURVEYOR AT CONTRACTOR'S EXPENSE.
10. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING STRUCTURES AND UTILITIES DURING CONSTRUCTION.
11. A SET OF PLANS AND A SET OF SPECIFICATIONS WILL BE KEPT AT ALL TIMES AT THE JOB SITE ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY AND SUBMITTED TO THE DISTRICT ENGINEER WHEN THE WORK TO BE DONE IS COMPLETED.
12. CONTRACTOR SHALL NOTIFY ALL PUBLIC OR PRIVATE UTILITY COMPANIES 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO EXISTING UTILITY LINES UNLESS ENCROACHMENT PERMIT SPECIFIES OTHERWISE.
13. CONTRACTOR SHALL CONTACT THE HBMWD ENGINEER, OR HIS DESIGNEE, TO ARRANGE A PRE-CONSTRUCTION MEETING FOR THE PURPOSE OF REVIEWING JOB REQUIREMENTS AND DISTRICT PROCEDURES PER SPECIFICATION SECTION 01010.
14. ALL MATERIALS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
15. CONTRACTOR SHALL CONFORM TO EXISTING STREETS, SURROUNDING LANDSCAPES, AND OTHER IMPROVEMENTS WITH A SMOOTH TRANSITION IN PAVING, CURBS, GUTTERS, SIDEWALKS, GRADING, ETC., AND TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADE OR CROSS SLOPES, LOW SPOTS, OR HAZARDOUS CONDITIONS. CONTRACTOR SHALL COORDINATE ALL NECESSARY UTILITY RELOCATIONS, IF REQUIRED, WITH THE APPROPRIATE UTILITY COMPANIES.
16. CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 72 HOURS IN ADVANCE OF COMMENCEMENT OF ANY PART OF THE WORK.
17. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL LOCATE BY EXCAVATION, EXISTING WATER FACILITIES, TO ASCERTAIN VERTICAL AND HORIZONTAL POSITION. IF CONFLICTS ARISE, CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
18. CONTRACTOR SHALL CONDUCT ALL EARTH DISTURBING OPERATIONS IN SUCH A MANNER AS TO PRECLUDE WIND BLOWN DIRT AND DUST AND RELATED DAMAGE TO NEIGHBORING PROPERTIES. SUFFICIENT WATERING TO CONTROL DUST IS REQUIRED AT ALL TIMES. CONTRACTOR SHALL ASSUME LIABILITY FOR CLAIMS RELATED TO WIND BLOWN MATERIAL. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SEDIMENT AND EROSION CONTROL. IF THE DUST CONTROL IS INADEQUATE AS DETERMINED BY THE ENGINEER, THE CONSTRUCTION WORK SHALL BE TERMINATED UNTIL CORRECTIVE MEASURES ARE TAKEN.
19. TIE-INS TO EXISTING MAINS SHALL BE MADE AFTER CHLORINATION, BACTERIAL AND PRESSURE TESTS ARE COMPLETED AND APPROVED BY PROJECT ENGINEER. TIE-INS AND SYSTEM INTERRUPTIONS SHALL BE COORDINATED WITH THE ENGINEER AND CUSTOMERS, AND A MINIMUM OF TWO WEEKS NOTICE SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER PRIOR TO ANY INTERRUPTION IN SERVICE.
20. A MINIMUM OF THREE FEET (3') OF COVER ON WATER MAINS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OF STREETS, UNLESS OTHERWISE SPECIFIED BY THE DISTRICT OR SHOWN ON THE CONTRACT DRAWINGS.
21. PROVIDE, OPERATE AND MAINTAIN PUMPING EQUIPMENT AS NECESSARY TO CONTROL WATER DURING TIE-INS FROM DRAINED PIPES. ONE OR MORE OF THE FOLLOWING MANAGEMENT OPTIONS SHALL BE USED BY THE CONSTRUCTION CONTRACTOR TO PROTECT WATER QUALITY DURING CONSTRUCTION: A) REUSE THE WATER ON-SITE FOR DUST CONTROL OR COMPACTION, B) RETAIN THE WATER ON-SITE IN A GRASSY OR POROUS AREA TO ALLOW INFILTRATION/EVAPORATION, C) DISCHARGE BY PERMIT TO STORM DRAIN. CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SEQUENCING PLAN SHOWING HOW THE TIE-IN WILL BE COMPLETED. NOTIFY THE ENGINEER A MINIMUM OF 14 CALENDAR DAYS IN ADVANCE OF PLANNED CONNECTION.

DUST CONTROL NOTES

TO ADDRESS THE POTENTIAL FOR DUST GENERATION, THE CONTRACTOR IS REQUIRED TO IMPLEMENT THE FOLLOWING BMPS, WHICH APPLY TO GROUND DISTURBING MAINTENANCE ACTIVITIES AND EQUIPMENT EXHAUST.

1. ALL EXPOSED SURFACES (E.G., PARKING AREAS, STAGING AREAS, SOIL PILES, GRADED AREAS, AND UNPAVED ACCESS ROADS) WILL BE WATERED AS NECESSARY DURING DUSTY CONDITIONS.
2. IF LOOSE MATERIAL BECOMES AIRBORNE DURING TRANSPORTATION, ALL HAUL TRUCKS TRANSPORTING SOIL, SAND, OR OTHER LOOSE MATERIAL OFF-SITE WILL BE COVERED.
3. DISTURBED ROADWAYS WILL BE RE-PAVED AS SOON AS POSSIBLE FOLLOWING WORK IN THE AREA, AS APPROPRIATE.
4. ALL VISIBLE MUD OR DIRT TRACKED-OUT ONTO ADJACENT PUBLIC ROADS WILL BE REMOVED USING WET POWER VACUUM STREET SWEEPERS, AS NECESSARY. THE USE OF DRY POWER SWEEPING IS PROHIBITED.
5. IDLING TIMES WILL BE MINIMIZED BY SHUTTING EQUIPMENT OFF WHEN NOT IN USE.
6. ALL CONSTRUCTION EQUIPMENT WILL BE MAINTAINED AND PROPERLY TUNED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ENVIRONMENTAL NOTES

1. CONSTRUCTION EQUIPMENT SHALL NOT ENTER AREAS DESIGNATED AS WETLAND OR ENVIRONMENTAL SENSITIVE HABITAT AREAS (ESHA). THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING PROTECTIVE FENCING TO ENSURE PROTECTION OF THESE RESOURCES AS DESIGNATED ON THE CONTRACT DRAWINGS.
2. THE DISTRICT AND THE ENGINEER RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO REPAIR DAMAGE IN CONSTRUCTION ACCESS ROUTES.
3. CONTAMINATION PREVENTION RESTRICTIONS: THE CONTRACTOR SHALL TAKE PREVENTATIVE MEASURES TO AVOID ANY SPILLS OR LEAKS ON THE SITE FROM PETROLEUM PRODUCTS. THE CONTRACTOR SHALL PREPARE A SPILL PREVENTION AND RESPONSE PLAN THAT WILL BE APPROVED BY THE ENGINEER. THIS PLAN MUST BE IMPLEMENTED AND ADHERED BY THE CONTRACTOR. AS A MINIMUM, THIS PLAN SHALL REQUIRE THAT STAGING, STORAGE AND REFUELING AREAS AND ANY EQUIPMENT REPAIR OR SIMILAR ACTIVITY TAKING PLACE, SHALL OCCUR AT LEAST 100-FEET FROM ANY ACTIVE CREEK CHANNEL, DITCH, POND, OR FENCED SENSITIVE AREA. REFUELING SHALL ONLY OCCUR IN AREAS APPROVED BY THE ENGINEER OR THE ENVIRONMENTAL MONITOR.
4. STAGING AND STORING AREAS: ANY STAGING OR STORAGE IN WETLANDS OR OTHER SENSITIVE HABITATS ARE NOT PERMITTED.
5. BIOLOGICAL RESTRICTIONS - WETLANDS AND ENVIRONMENTAL SENSITIVE HABITAT AREAS (ESHA): DUE TO THE SENSITIVE NATURE OF THE SITE, THE CONTRACTOR SHALL NOT ENTER INTO THESE AREAS FOR ANY REASON WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER OR THE ENVIRONMENTAL MONITOR. PRIOR TO THE START OF THE CONSTRUCTION, THE ENVIRONMENTAL MONITOR OR THE ENGINEER WILL GIVE CONTRACTORS STAFF A PRESENTATION REGARDING SPECIAL STATUS SPECIES AND RESTRICTIONS REQUIRED IN TERMS OF CLEARANCE SURVEYS AND CONSTRUCTION MONITORING.
6. THE DISTRICT AND/OR ENGINEER RESERVE THE RIGHT TO REQUIRE THE CONTRACTOR TO REPAIR DAMAGE IN CONSTRUCTION ACCESS ROUTES.

TOPOGRAPHIC SURVEY NOTES

1. THE PURPOSE OF THIS SURVEY IS TO DETERMINE THE TOPOGRAPHIC FEATURES AND RIGHTS OF WAY FOR THIS PIPELINE IMPROVEMENT PROJECT.
2. HORIZONTAL DATUM FOR THIS PROJECT IS CALIFORNIA STATE PLANE COORDINATE SYSTEM OF 1983 BASED ON GPS SURVEY HOLDING NGS PID LV1180, DESIGNATED 'ARP 1967' EPOCH 2007.0. POINT NO. 401, A 30" REBAR AND CAP, AS SHOWN ON SURVEY IS 'LOCAL CONTROL' POINT. A COMBINED SCALE FACTOR OF 0.99989811 WAS DETERMINED AT THIS POINT AND HELD FOR PROJECT AREA. TO OBTAIN GROUND DISTANCES DIVIDE GRID DISTANCES SHOWN 0.99989811. BEARINGS ARE CCS83 GRID BEARINGS. ROTATE BEARINGS COUNTERCLOCKWISE BY 1 DEGREE 26 MINUTES 20 SECONDS TO OBTAIN TRUE BEARINGS.
3. VERTICAL DATUM: THE ELEVATION OF 6.10 FEET ON NGS PID LV1180, WAS HELD AS THE BASIS OF ELEVATIONS SHOWN AND IS BASED ON NAVD88 DATUM. AN ELEVATION OF 32.98' WAS DETERMINED BY STATIC GPS METHODS UTILIZING THE GEIOD 2009 MODEL AT POINT 401.
4. UNDERGROUND UTILITIES ARE SHOWN BASED ON VISIBLE PHYSICAL EVIDENCE AND PUBLIC RECORDS MADE AVAILABLE TO THE SURVEYOR BY PACIFIC GAS AND ELECTRIC, BY GHD (HBMWD PLANS FOR TECHITE WATERLINE IMPROVEMENT PROJECT AND OTHER RELATED PLANS), AND INFORMATION FROM HBMWD EMPLOYEES. THE GAS METERS ALONG LINDSTROM WERE NOT LOCATED, GAS LINE AND LATERALS ARE SHOWN BASED ON PG&E PLANS AND ARE APPROXIMATE. THE LOCATION OF THE 18" TECHITE WATER LINE IS BASED UPON THE STRUCTURES AND PAINT DOTS OR WATERLINE FLAGS LOCATED BY HBMWD EMPLOYEES IN MARCH OF 2012. THE ACCURACY OF THESE MARKS IS UNKNOWN. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED UNDERGROUND UTILITIES. THEY ARE SHOWN IN APPROXIMATE LOCATION BASED ON AVAILABLE EVIDENCE. SEE UNDERGROUND UTILITY NOTE BELOW.
5. MANY FEATURES ARE SHOWN SYMBOLICALLY AND ARE NOT TO SCALE INCLUDING BUT NOT LIMITED TO POWER POLES, GUY WIRES, WATER VALVES, AND SIGNS. OVERHEAD POWER AND TELEPHONE AS WELL AS STORM AND SANITARY SEWERS ARE ALSO SHOWN SYMBOLICALLY, E.G. A SINGLE LINE AS SHOWN DOES NOT SHOW PIPE WIDTHS OR NUMBER AND WIDTH BETWEEN WIRES. OVERHEAD POWER AND TELEPHONE FEED LINES TO INDIVIDUAL HOUSES IN THE SOUTHERN PORTION OF THE PROJECT, ARE NOT SHOWN FOR CLARITY PURPOSES- ONLY TELEPHONE AND POWER "MAINS" ARE SHOWN BETWEEN POLES IN SURVEYED AREA.

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No	Revision Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
*	*	*			*

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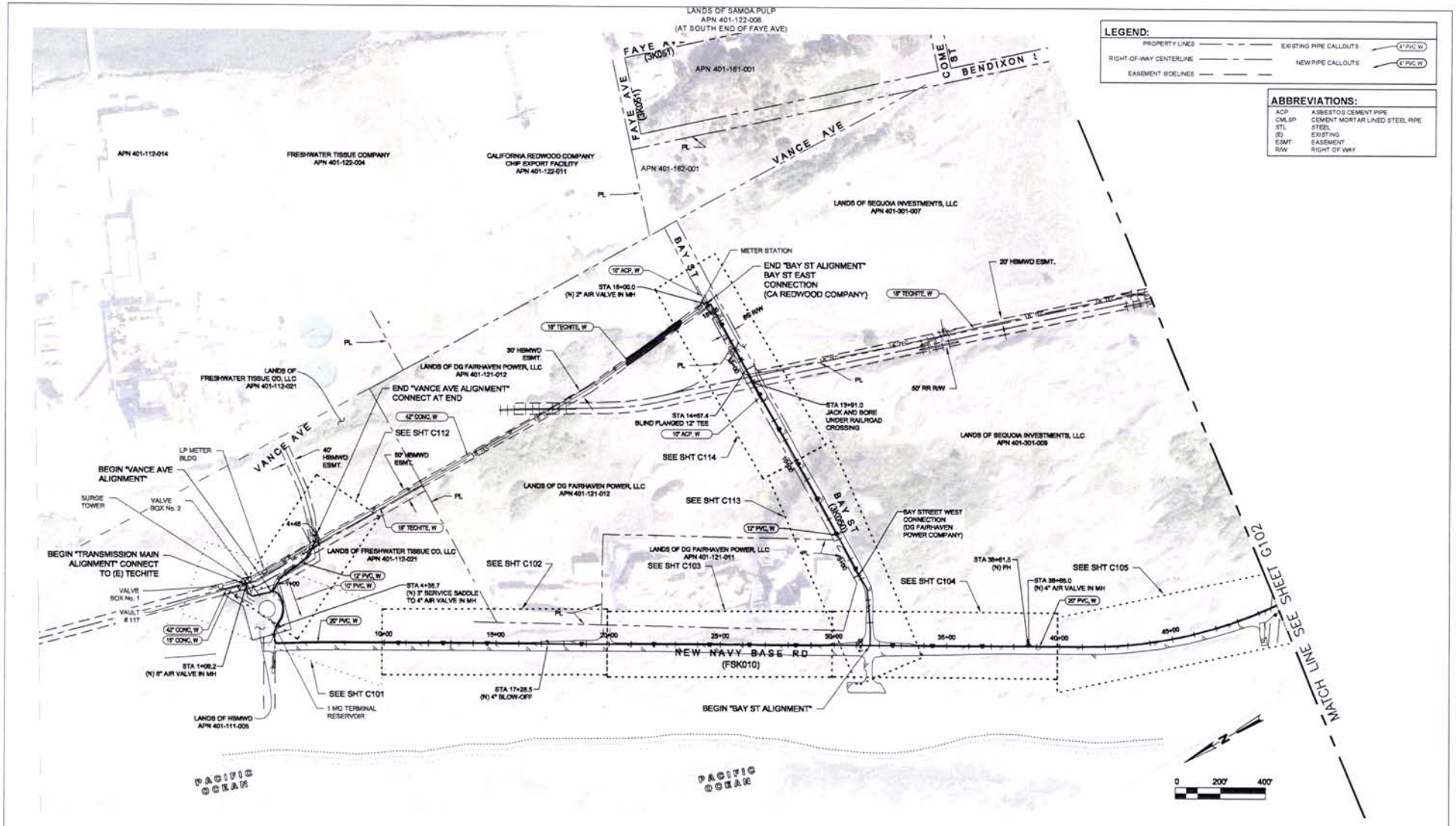
Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	GENERAL, ENVIRONMENTAL & SURVEY NOTES
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: G003 — Sht 3 of 35 Rev:

Plot Date: 10 October 2013 - 2:34 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\0105511012G003.dwg



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No	Revision	Drawn	Job Manager	Project Director	Date
-	-				-

Plot Date: 10 October 2013 - 2:34 PM Plotted by: Yoash Tiltes

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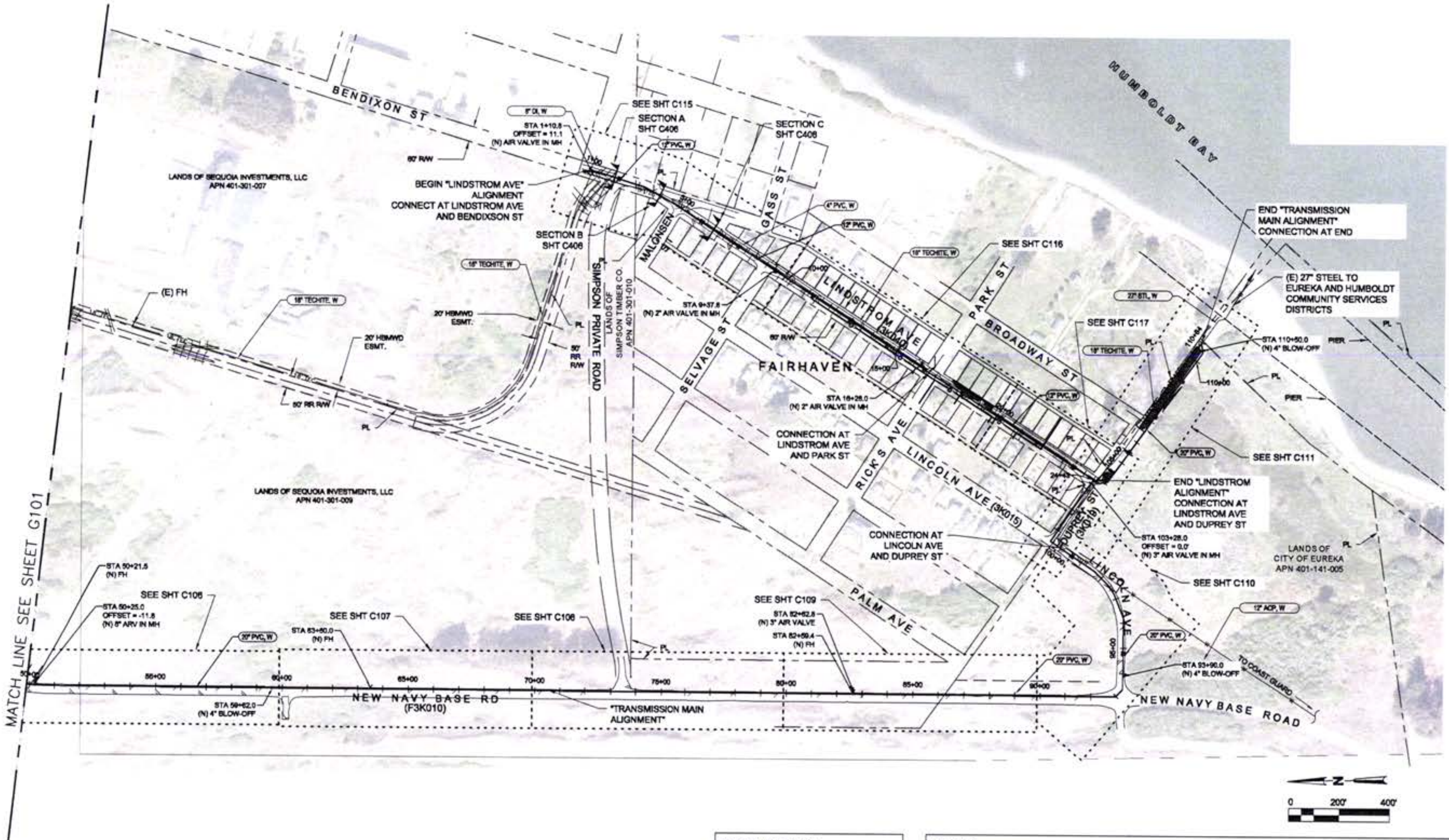
Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	

Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: OVERALL SITE PLAN & PLAN/PROFILE INDEX - 1 OF 2
Contract No. 01055-11-012
Drawing Size: Arch D
Drawing No: G101
Sht 4 of 35
Rev:



ABBREVIATIONS:

ACP	ASBESTOS CEMENT PIPE
CMLSP	CEMENT MORTAR LINED STEEL PIPE
EP	EDGE OF PAVEMENT
STL	STEEL
(E)	EXISTING
ESMT	EASEMENT
R/W	RIGHT OF WAY

LEGEND:

ENVIRONMENTALLY SENSITIVE HABITAT AREAS

PROPERTY LINES

RIGHT-OF-WAY CENTERLINE

EASEMENT SIDELINES

EDGE OF PAVEMENT

EXISTING PIPE CALLOUTS

NEW PIPE CALLOUTS

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Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	OVERALL SITE PLAN & PLAN/PROFILE INDEX - 2 0F 2
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: G102

Sheet 5 of 35

Rev:

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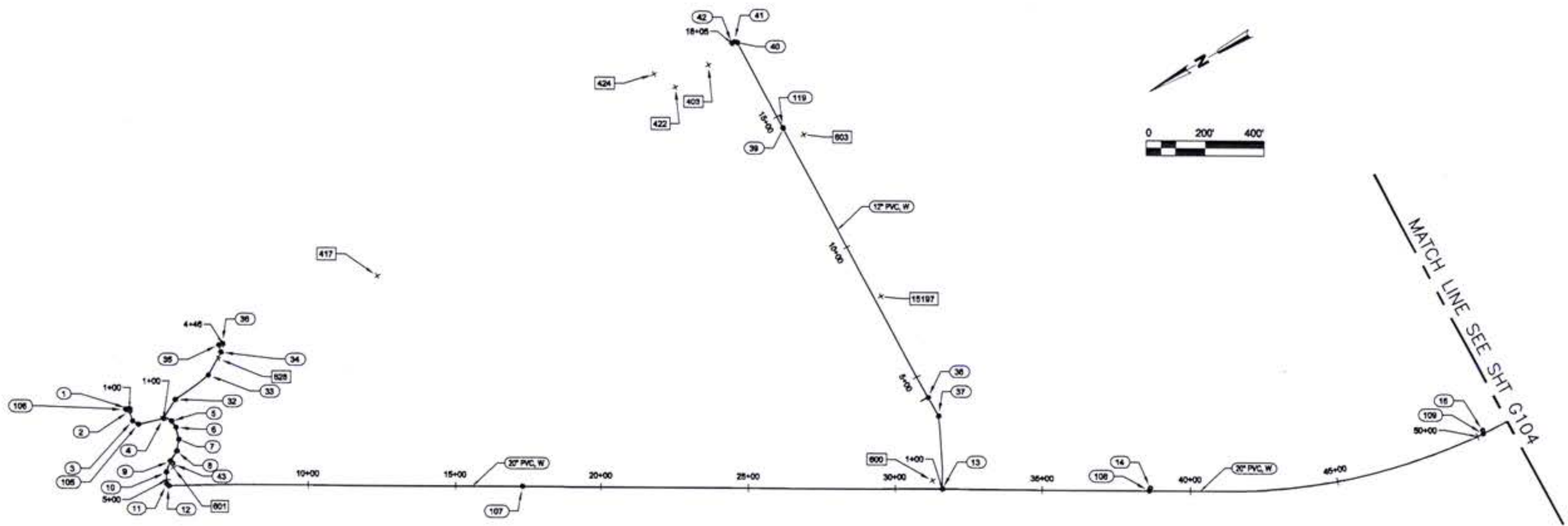
Plot Date: 10 October 2013 - 2:34 PM Plotted by: Yoash Tillas Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110120101-G102.dwg



POINT #	NORTHING	EASTING	DESCRIPTION
TRANSMISSION MAIN HORIZONTAL CONTROL TABLE STA 1+00 - 50+00			
1	2184294.82	5953119.13	BEGIN TRANSMISSION MAIN ALIGN
2	2184296.98	5953111.26	CENTER OF ARV MH
3	2184306.26	5953077.10	BEND PER PLAN
4	2184211.12	5953031.97	FITTING PER PLAN (BEGIN "VANCE AVE" ALIGN)
5	2184191.41	5953011.26	BEND PER PLAN
6	2184188.87	5952985.74	BEND PER PLAN
7	2184201.31	5952944.54	BEND PER PLAN
8	2184226.86	5952913.59	BEND PER PLAN
9	2184261.90	5952894.69	BEND PER PLAN
10	2184292.79	5952869.28	BEND PER PLAN
11	2184311.61	5952833.98	BEND PER PLAN

POINT #	NORTHING	EASTING	DESCRIPTION
TRANSMISSION MAIN HORIZONTAL CONTROL TABLE STA 1+00 - 50+00			
12	2184308.69	5952824.41	BEND PER PLAN
13	2182030.86	5951499.84	FITTING PER PLAN (BEGIN "BAY STREET" ALIGN)
14	2181416.79	5951150.23	CENTER OF ARV MH
15	2180344.07	5950758.44	CENTER OF ARV MH
43	2184260.11	5952883.74	CENTER OF ARV MH
105	2184294.86	5953057.47	BEND PER PLAN
106	2184305.76	5953122.11	CONNECT TO (E) ADAPTOR
107	2183266.43	5952220.88	FITTING PER PLAN
108	2181424.72	5951143.36	FITTING PER PLAN
109	2180347.96	5950747.85	FITTING PER PLAN

POINT #	NORTHING	EASTING	DESCRIPTION
VANCE AVE ALIGNMENT HORIZONTAL CONTROL TABLE			
32	2184143.55	5953067.99	BEND PER PLAN
33	2184002.73	5953083.82	BEND PER PLAN
34	2183926.19	5953129.93	BEND PER PLAN
35	2183920.51	5953154.49	BEND PER PLAN
36	2183907.67	5953151.80	END "VANCE AVE" ALIGN

POINT #	NORTHING	EASTING	DESCRIPTION
BAY STREET ALIGNMENT HORIZONTAL CONTROL TABLE			
37	2181918.38	5951721.18	BEND PER PLAN
38	2181916.48	5951793.51	CONNECTION TO DG FAIRHAVEN POWER
39	2181889.27	5952827.29	FITTING PER PLAN
40	2181880.80	5953157.04	BEND PER PLAN
41	2181887.42	5953164.24	BEND PER PLAN
42	2181897.42	5953184.50	CONNECTION PER PLAN
119	2181889.21	5952829.75	FITTING PER PLAN

LEGEND:

- NEW PIPE CALLOUT — 4" PVC,W
- CONTROL POINT NUMBER — 4
- ALIGNMENT HORIZONTAL CONTROL POINTS — 16

CONTROL POINT #	NORTHING	EASTING
HORIZONTAL CONTROL POINTS TABLE (SEE SHT G104 FOR ADDITIONAL CONTROL POINTS)		
403	2182002.31	5953139.86
417	2183337.63	5953087.25
422	2182136.01	5953130.24
424	2182176.70	5953204.86
600	2182046.15	5951640.22
601	2184264.13	5952869.85
603	2181639.25	5952774.35
528	2183946.07	5953114.78
15197	2181683.84	5952170.46

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Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **HORIZONTAL CONTROL PLAN - 1 OF 2**

Contract No: 01055-11-012
Original Size: Ansi D — Drawing No: **G103** — Sht 6 of 35 — Rev:

Drawn: SJD/YT — Designer: YT
Drafting Check: PK — Design Check: PK
Approved (Project Director)
Date
Scale: AS SHOWN

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-	-		-	-

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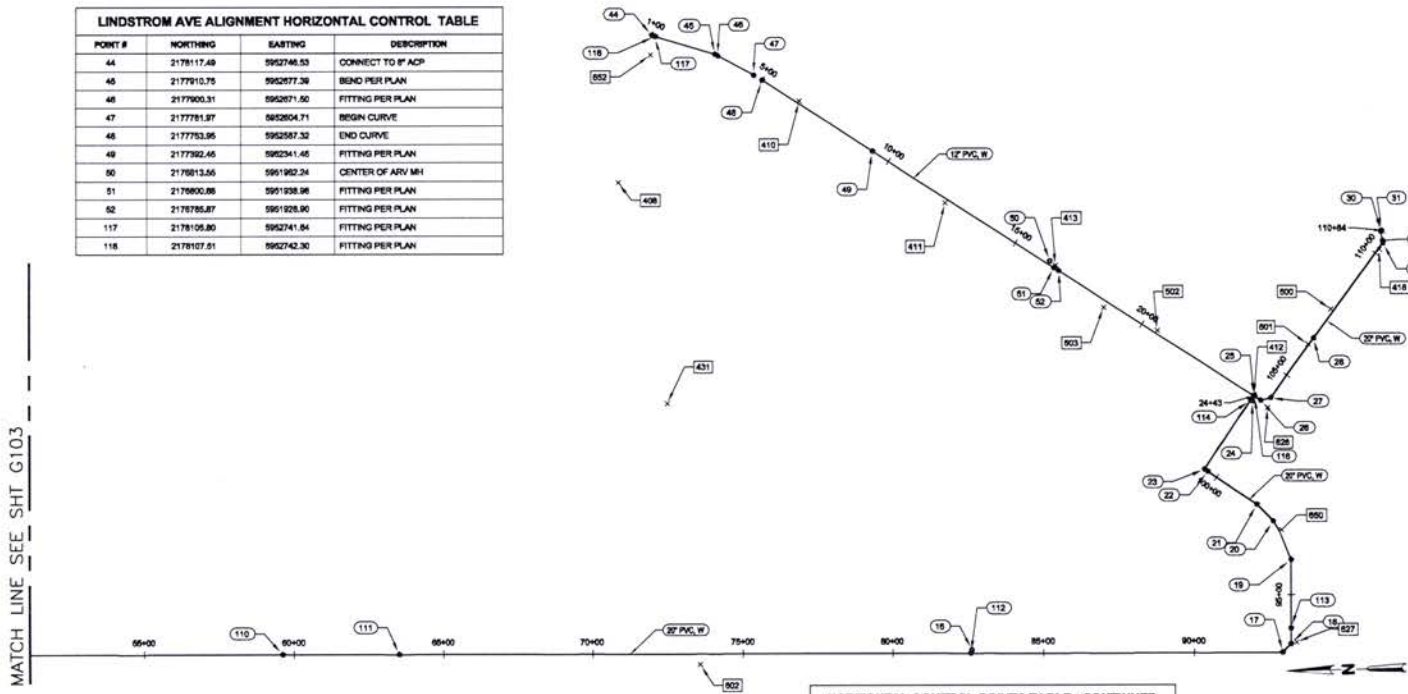

LINDSTROM AVE ALIGNMENT HORIZONTAL CONTROL TABLE

POINT #	NORTHING	EASTING	DESCRIPTION
44	2178117.49	5952746.53	CONNECT TO 8" ACP
45	2177910.75	5952677.39	BEND PER PLAN
46	2177900.31	5952671.50	FITTING PER PLAN
47	2177781.97	5952604.71	BEGIN CURVE
48	2177753.95	5952587.32	END CURVE
49	2177392.45	5952341.45	FITTING PER PLAN
50	2176813.56	5951962.24	CENTER OF ARV MH
51	2176800.88	5951938.96	FITTING PER PLAN
52	2176785.87	5951926.90	FITTING PER PLAN
117	2178105.80	5952741.84	FITTING PER PLAN
118	2178107.81	5952742.30	FITTING PER PLAN

TRANSMISSION MAIN HORIZONTAL CONTROL TABLE STA 50+00 - END

POINT #	NORTHING	EASTING	DESCRIPTION
16	2177107.80	5960673.51	CENTER OF ARV MH
17	2176073.14	5950637.32	BEND PER PLAN
18	2176044.07	5950864.80	BEND PER PLAN
19	2176036.18	5950944.40	BEND PER PLAN
20	2176093.49	5951073.71	BEND PER PLAN
21	2176147.00	5951130.33	BEND PER PLAN
22	2176308.41	5951244.90	FITTING PER PLAN (CONNECT TO 12" ACP)
23	2176316.92	5951252.36	BEND PER PLAN
24	2176151.20	5951476.37	CENTER OF ARV MH
25	2176146.51	5951494.05	FITTING PER PLAN (BEGIN "LINDSTROM AVE" ALIGN)
26	2176124.19	5951478.88	BEND PER PLAN
27	2176068.82	5951485.42	BEND PER PLAN
28	2175941.85	5951660.80	FITTING PER PLAN (4" CONNECTION)

TRANSMISSION MAIN HORIZONTAL CONTROL TABLE STA 50+00 - END

POINT #	NORTHING	EASTING	DESCRIPTION
29	2175706.72	5951991.08	BEND PER PLAN
30	2175710.91	5952029.11	FITTING PER PLAN
31	2175709.00	5952031.63	END "TRANSMISSION MAIN" ALIGN
110	2179407.96	5950721.72	FITTING PER PLAN
111	2179020.01	5950711.84	FITTING PER PLAN
112	2177111.22	5950662.60	FITTING PER PLAN
113	2176042.80	5950716.97	FITTING PER PLAN
114	2176157.58	5951477.80	FITTING PER PLAN
115	2175706.78	5951996.86	FITTING PER PLAN
116	2176143.74	5951492.17	FITTING PER PLAN

HORIZONTAL CONTROL POINTS TABLE - CONTINUED

CONTROL POINT #	NORTHING	EASTING
408	2178241.72	5952261.20
410	2177632.51	5952513.94
411	2177153.75	5952163.79
412	2176145.17	5951493.94
413	2176796.91	5951947.41
418	2175717.85	5951969.29
431	2176099.38	5951621.99
500	2175883.80	5951775.38
501	2175980.27	5951680.79
502	2176460.63	5951719.61
503	2176637.78	5951801.33
602	2178015.87	5950650.74
626	2176101.39	5951453.48
627	2176026.24	5950670.14
650	2176065.99	5951044.25
652	2178123.77	5952680.89

0 200' 400'

LEGEND:

NEW PIPE CALLOUT — 4" PVC W

CONTROL POINT NUMBER

ALIGNMENT HORIZONTAL CONTROL POINTS — 16

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Plot Date: 10 October 2013 - 2:35 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\06-CAD\Sheets\01055110120\G104.dwg

DRAFT (Registered Professional Engineer stamp, State of California, Civil)

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Drawn SJD/YT | Designer YT
Drafting Check PK | Design Check PK
Approved (Project Director)
Date
Scale AS SHOWN
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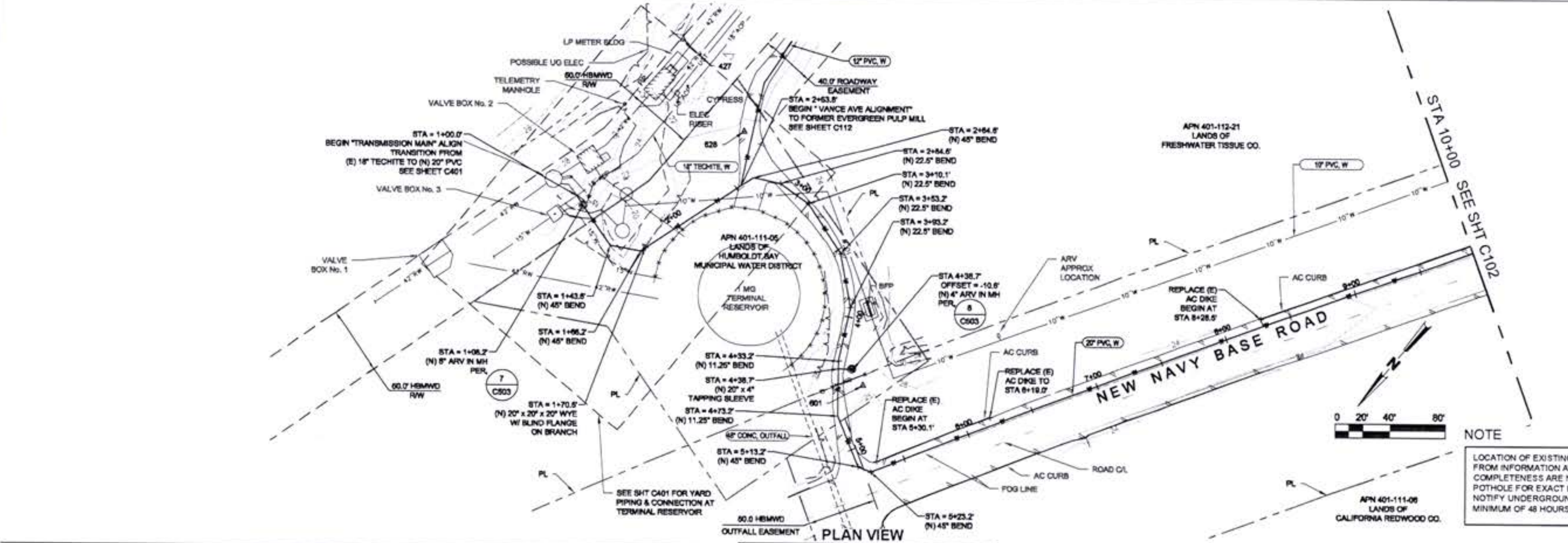
Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **HORIZONTAL CONTROL PLAN - 2 OF 2**
Contract No. 01055-11-012
Original Size: Ansi D Drawing No: **G104**
Sht 7 of 35 Rev:

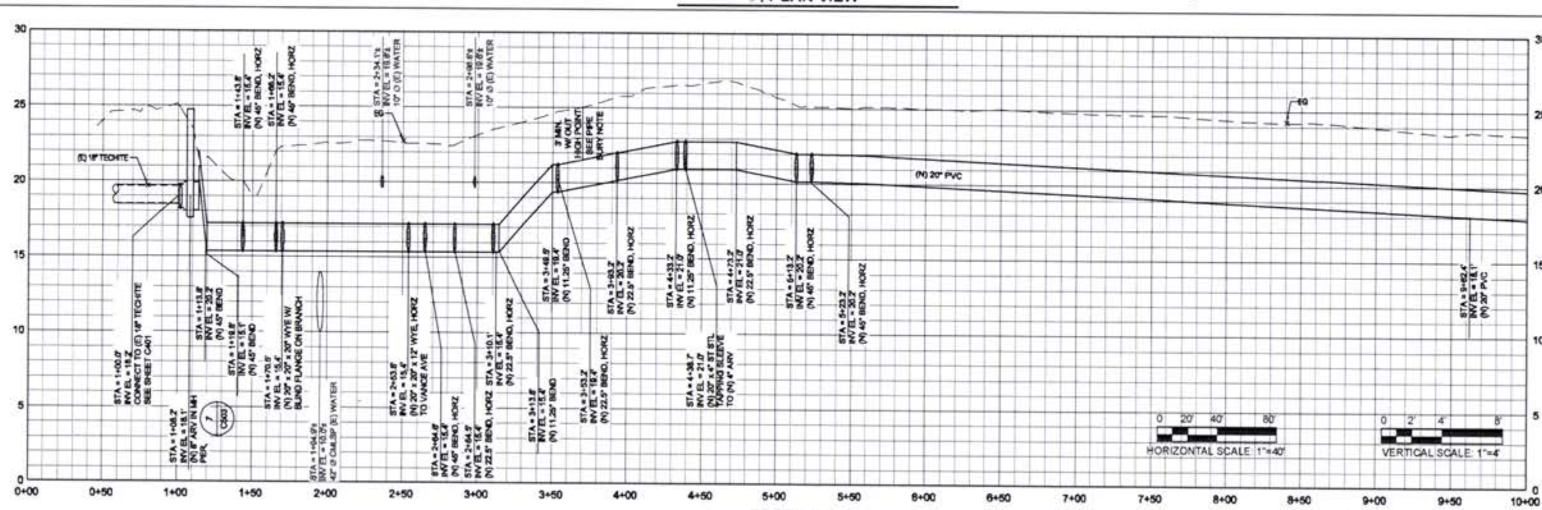


NOTE

LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THURST BLOCKS OR RESTRAINED JOINTS PER 3/C501



PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE TRANSMISSION MAIN STA 1+00 TO STA 10+00

Drawn: SJD/YT | Designer: YT | Drafting Check: PK | Design Check: PK | Approved (Project Director) | Date | Scale: AS SHOWN

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Contract No. 01055-11-012
Original Size: Ansi D
Drawing No: C101
Sheet 8 of 35
Rev:

NOTE

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SHEET GENERAL NOTES

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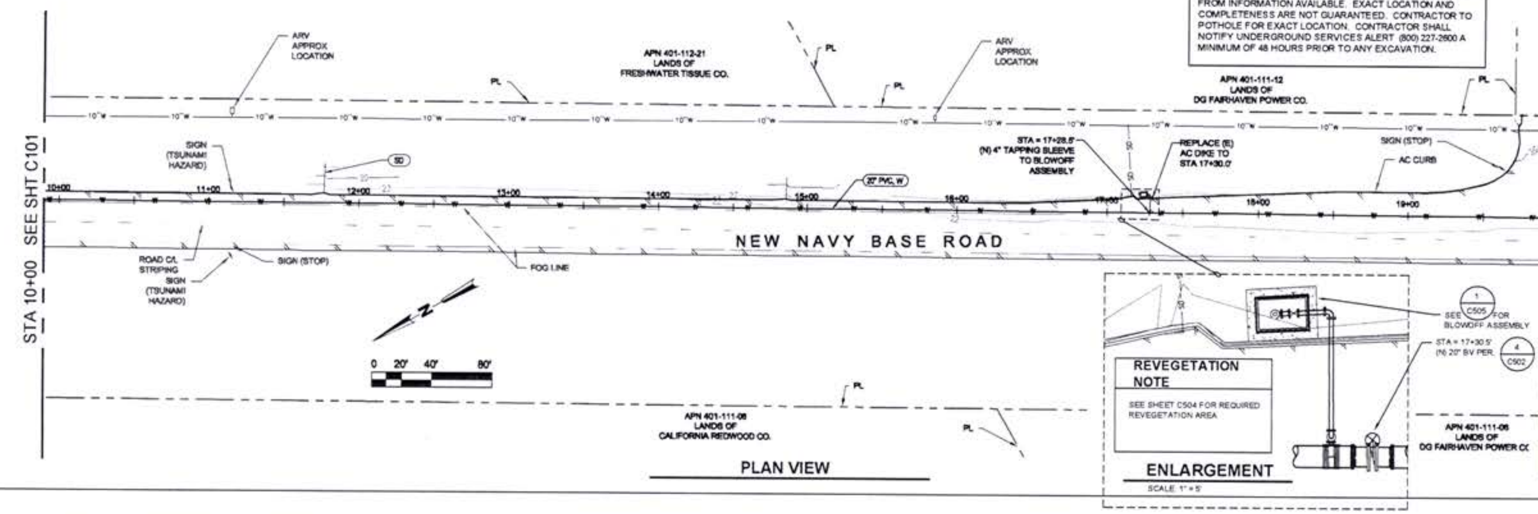
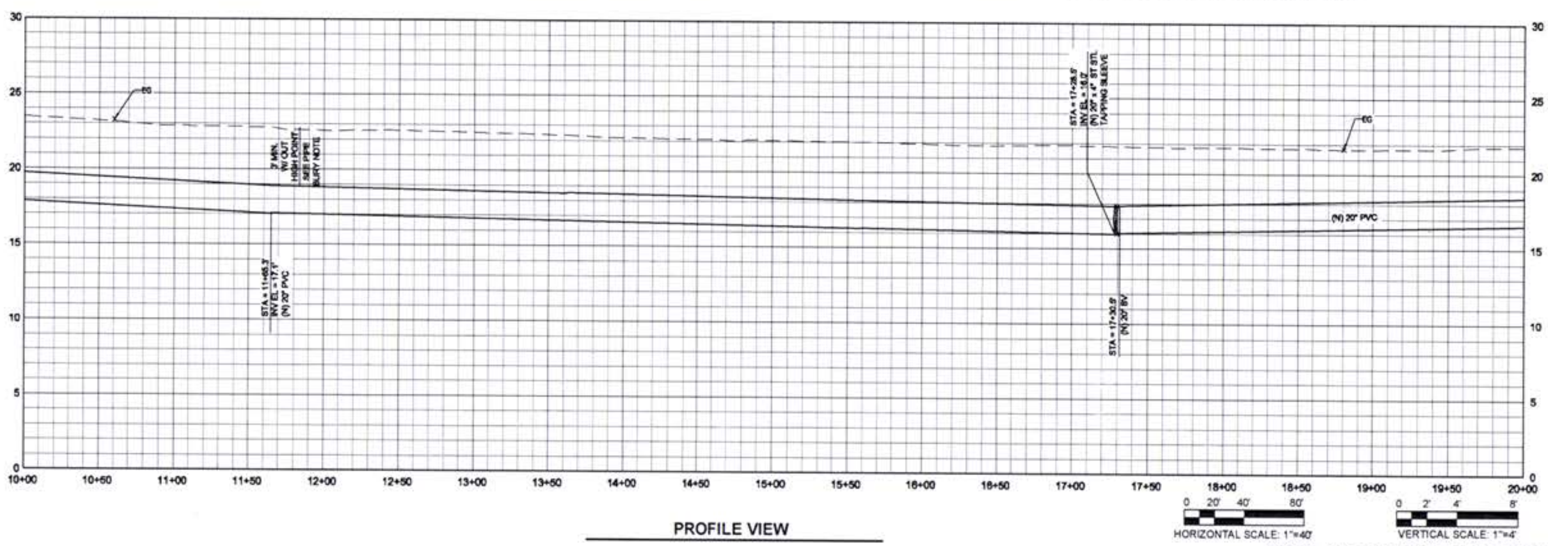
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THURST BLOCKS OR RESTRAINED JOINTS PER 3/C501



PLAN VIEW

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS



PROFILE VIEW

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Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project	TECHITE PIPELINE REPLACEMENT PROJECT
Title	PLAN & PROFILE TRANSMISSION MAIN STA 10+00 TO STA 20+00
Contract No.	01055-11-012
Original Size	Ansi D
Drawing No:	C102
Sht	9 of 35
Rev:	

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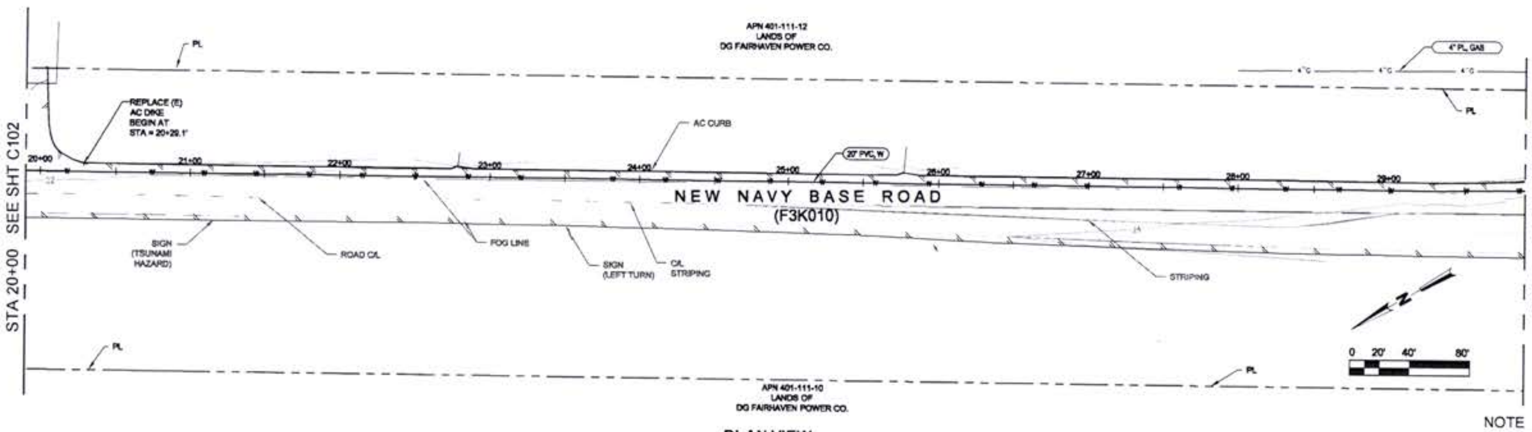
No	Revision	Drawn	Job Manager	Project Director	Date

Note: * indicates signatures on original issue of drawing or last revision of drawing

Plot Date: 10 October 2013 - 2:38 PM Plotted by: Yoash Tilev Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\08-CAD\Sheets\01055110\12C101-C105.dwg



PLAN VIEW

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEET G101 FOR HORIZONTAL CONTROL.
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN. SEE NOTES ON SHEET G003. SEE SHEETS G102 & G103 FOR ACCESS ROUTS, STAGING AREAS AND RECOMMENDED PIT LOCATIONS.
4. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY.
5. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS.
6. INSTALL THRUST BLOCKS AS REQUIRED PER 3/C501.

NOTE

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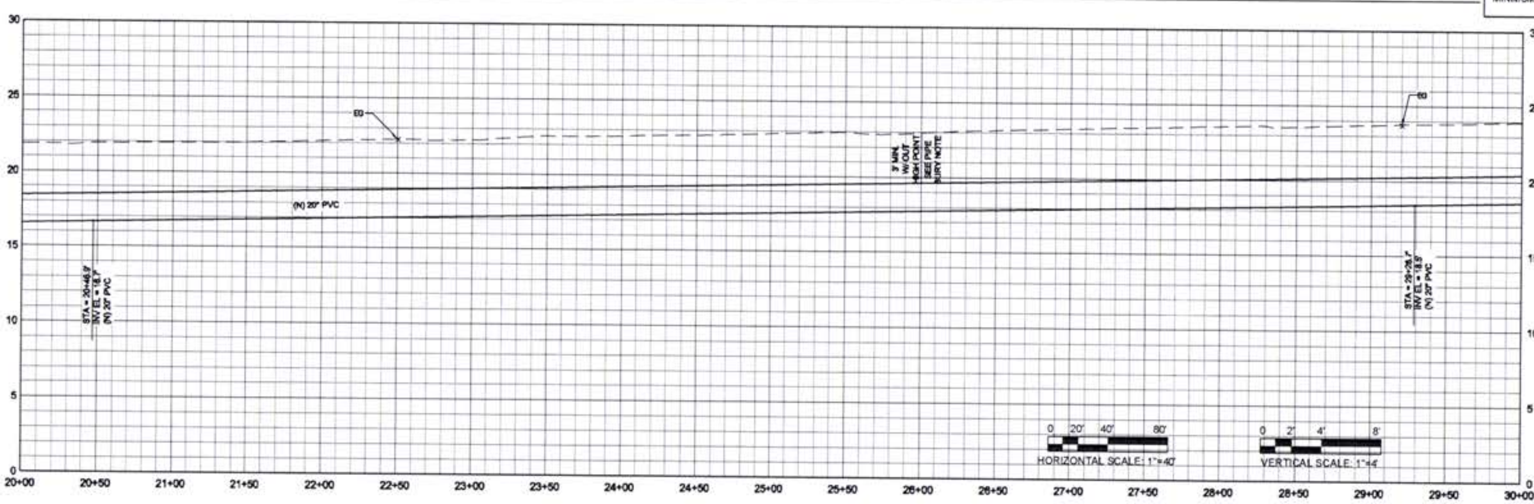

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS.

PROFILE VIEW

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Approved (Project Director)			
Date			
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Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **PLAN & PROFILE TRANSMISSION MAIN STA 20+00 TO STA 30+00**

Contract No. 01055-11-012

Original Size: Ansi D **Drawing No: C103**

Sht 10 of 35

Rev:

No | Revision | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date

Plot Date: 10 October 2013 - 2:38 PM   Plotted by: Yoash Tilles   Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055112C101-C105.dwg

NOTE

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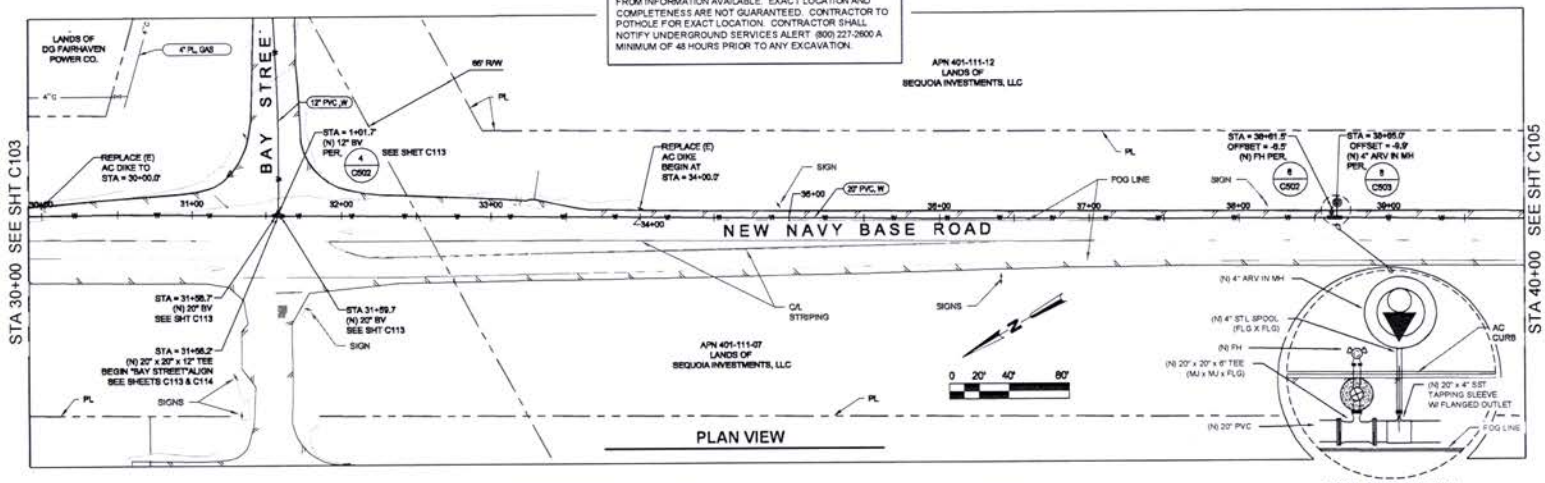
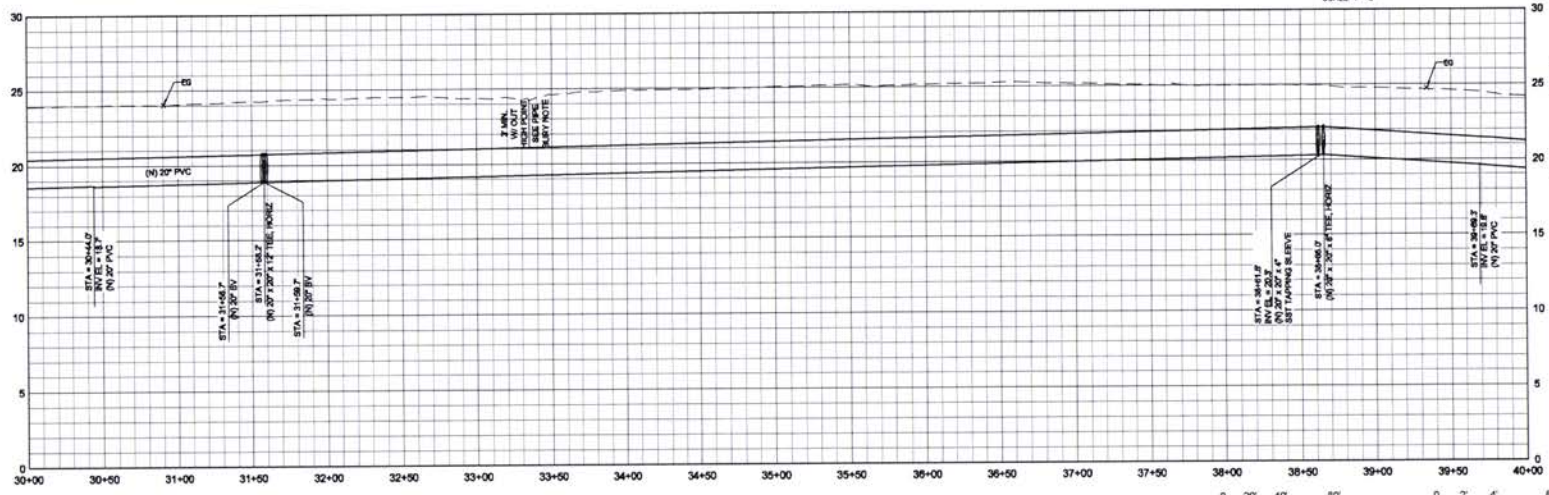


PLAN VIEW

ENLARGEMENT

SCALE: 1" = 5'



PROFILE VIEW

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THURST BLOCKS OR RESTRAINED JOINTS PER, 3/C501

REVEGETATION NOTE

SEE SHEET C504 FOR REQUIRED REVEGETATION AREA

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
*	-	-				*

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Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN		

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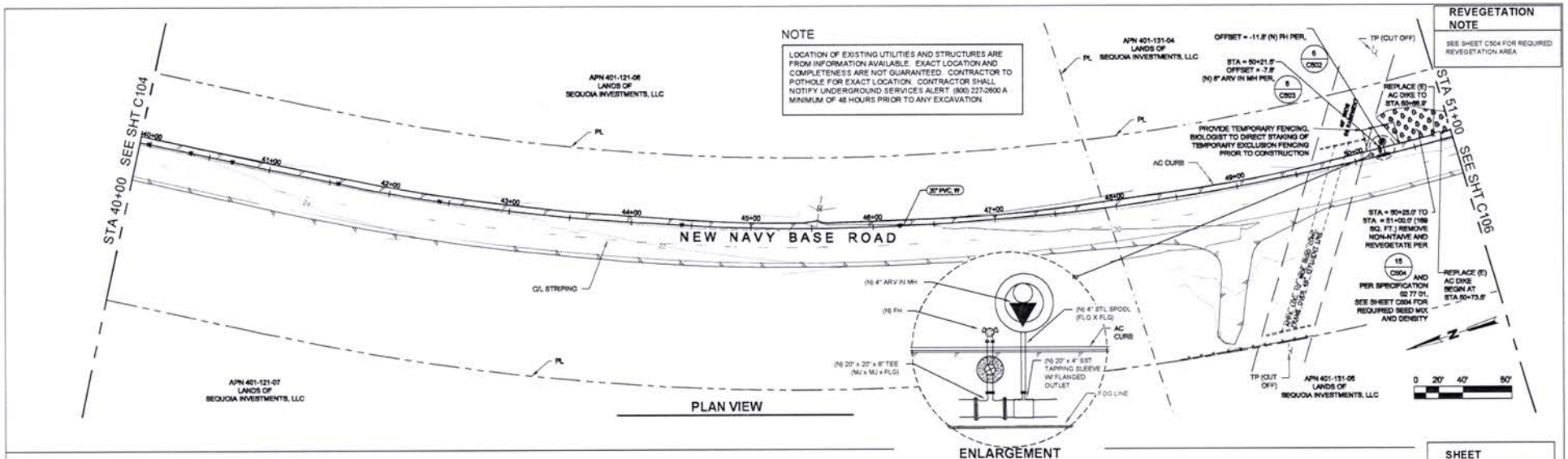
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE TRANSMISSION MAIN STA 30+00 TO STA 40+00
Contract No. 01055-11-012
Original Size: Arch D
Drawing No: C104
Sht 11 of 35
Rev:

Plot Date: 10 October 2013 - 2:36 PM Plotted By: Yoann Tilles
Cad File No: G:\01055.HBMWD\01055-11-012 Techite\Pipeline Replacement\06-CAD\Sheets\01055101C101-C105.dwg



REVEGETATION NOTE

SEE SHEET C504 FOR REQUIRED REVEGETATION AREA

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL
3. SEE (1/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE (2/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THURST BLOCKS OR RESTRAINED JOINTS PER (3/C501)

PIPE BURY NOTE

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-	-	-	-	-

Note: * indicates signatures on original issue of drawing or last revision of drawing

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Drawn	SJD/YT	Designer	YT
Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN		

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Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE TRANSMISSION MAIN STA 40+00 TO STA 51+00
Contract No: 01055-11-012
Original Size: Ansi D
Drawing No: C105
Sht 12 of 35
Rev:

Plot Date: 10 October 2013 - 2:38 PM Plotted By: Yoash Tiles
Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\04-CAD\Xrefs\01055101C101-C105.dwg

NOTE

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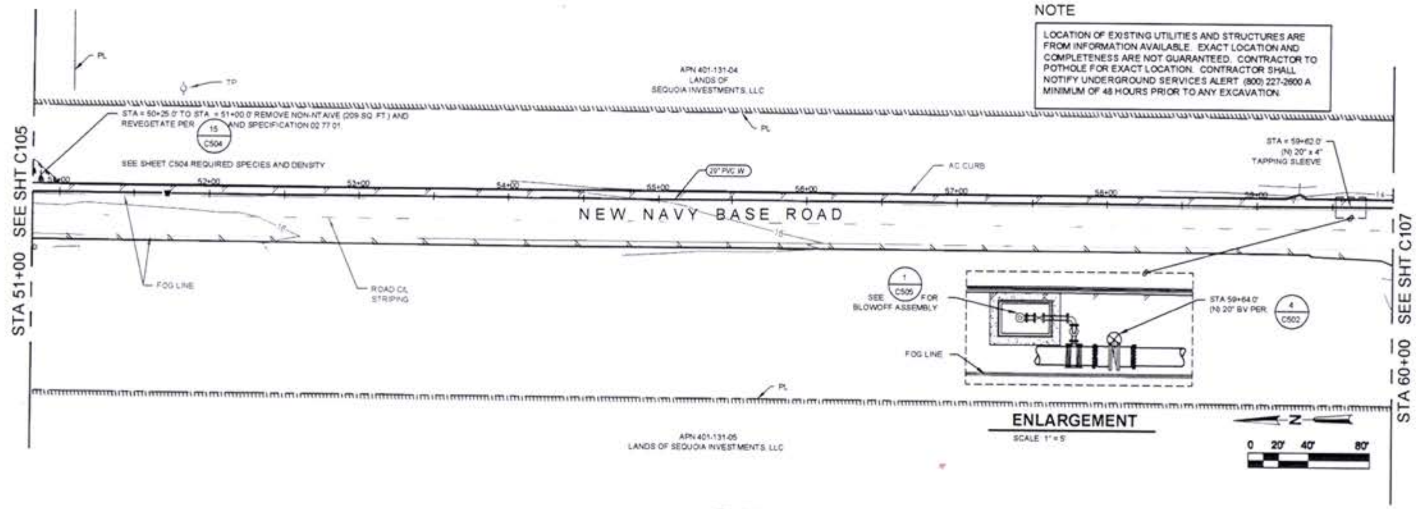
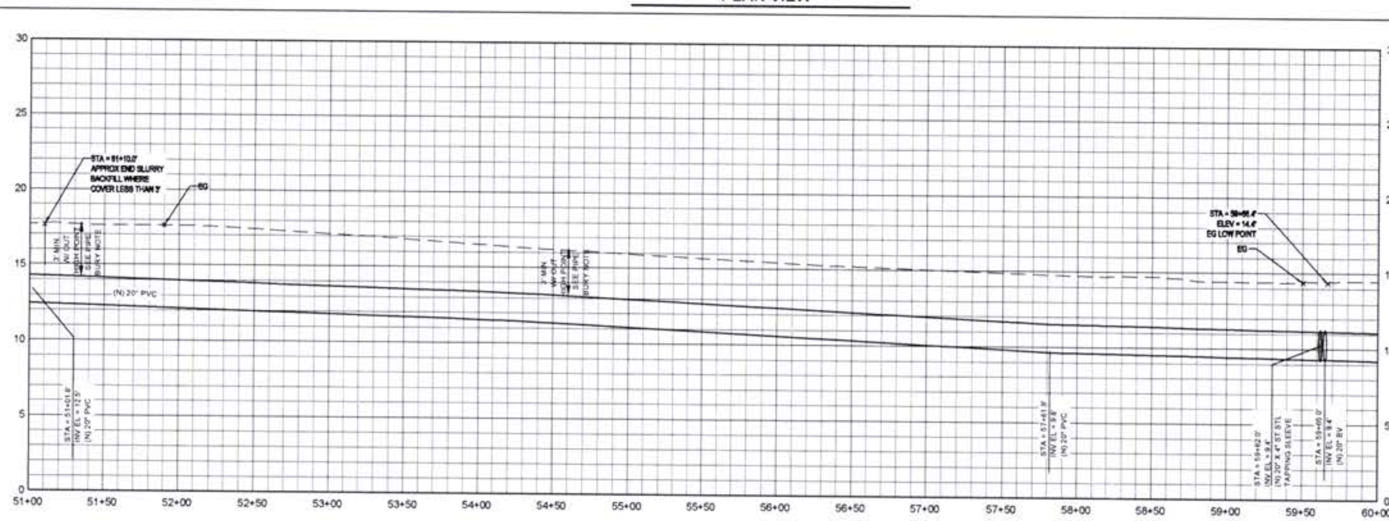


PLAN VIEW



PROFILE VIEW

0 20' 40' 80' HORIZONTAL SCALE: 1"=40'

0 2' 4' 8' VERTICAL SCALE: 1"=4'

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEET G103 FOR HORIZONTAL CONTROL.
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN.
4. SEE 1 C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
5. SEE 2 C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS.
6. INSTALL THRUST BLOCKS OR RESTRAINED FITTINGS PER 3 C501
7. MINIMIZE BENDS BY UTILIZING PIPE DEFLECTION WITHOUT EXCEEDING THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
*	*			*		*

Plot Date: 10 October 2013 - 2:37 PM | Plotted by: Yoash Tilles | Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055112C106-C110.dwg

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Drawn: SJD/YT	Designer: YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check: PK	Design Check: PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE TRANSMISSION MAIN STA 51+00 TO STA 60+00
Date		Contract No.	01055-11-012
Scale: AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size: Ansi D	Drawing No: C106

Sht 13 of 35

Rev:

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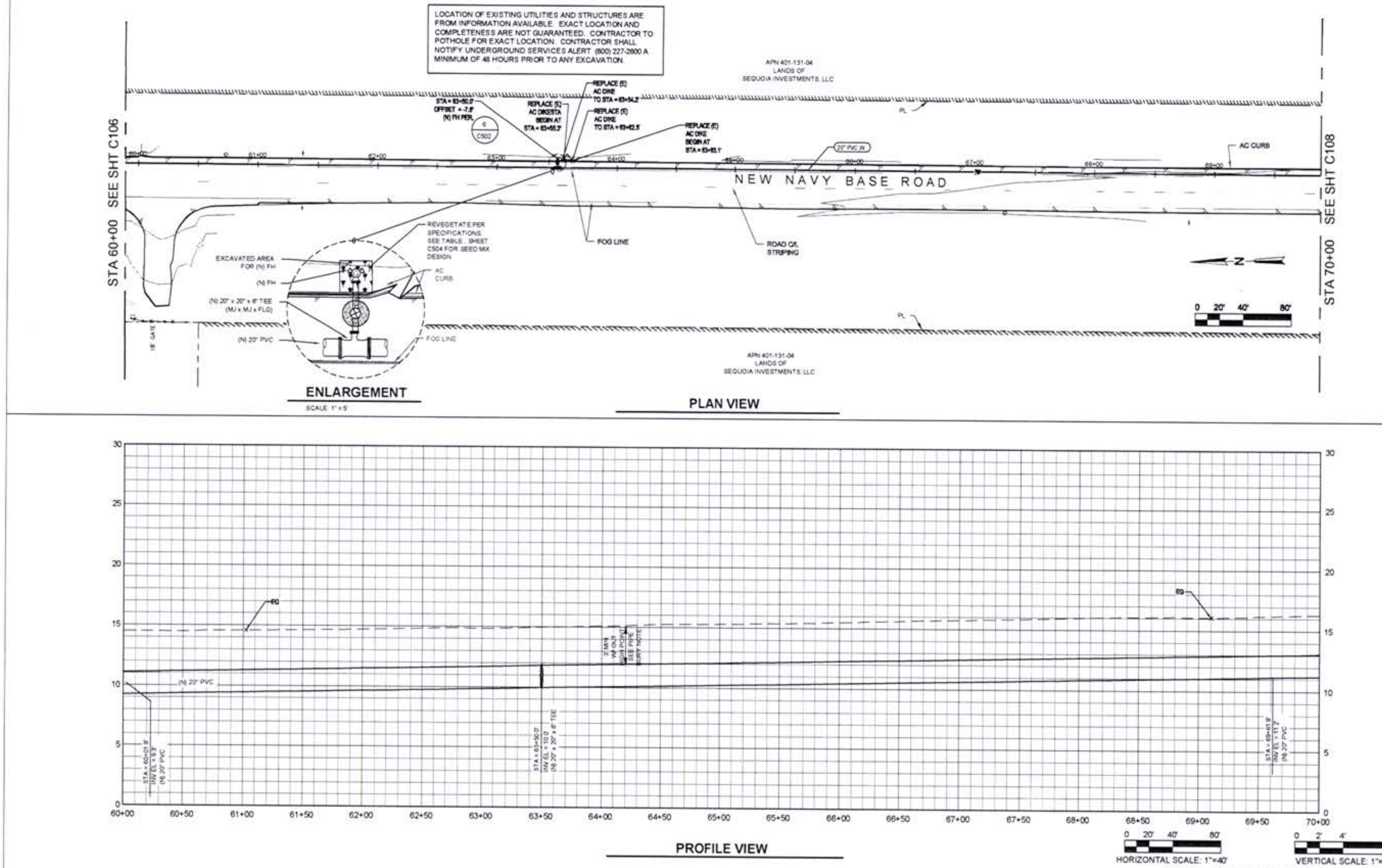

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEET G103 FOR HORIZONTAL CONTROL.
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN.
4. SEE (1/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY.
5. SEE (2/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS.
6. INSTALL THRUST BLOCKS OR RESTRAINED FITTINGS PER (3/C501).
7. MINIMIZE BENDS BY UTILIZING PIPE DEFLECTION WITHOUT EXCEEDING THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION.

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS.

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Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE TRANSMISSION MAIN STA 60+00 TO STA 70+00
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C107

Sht 14 of 35 Rev:

Plot Date: 10 October 2013 - 2:38 PM

NOTE

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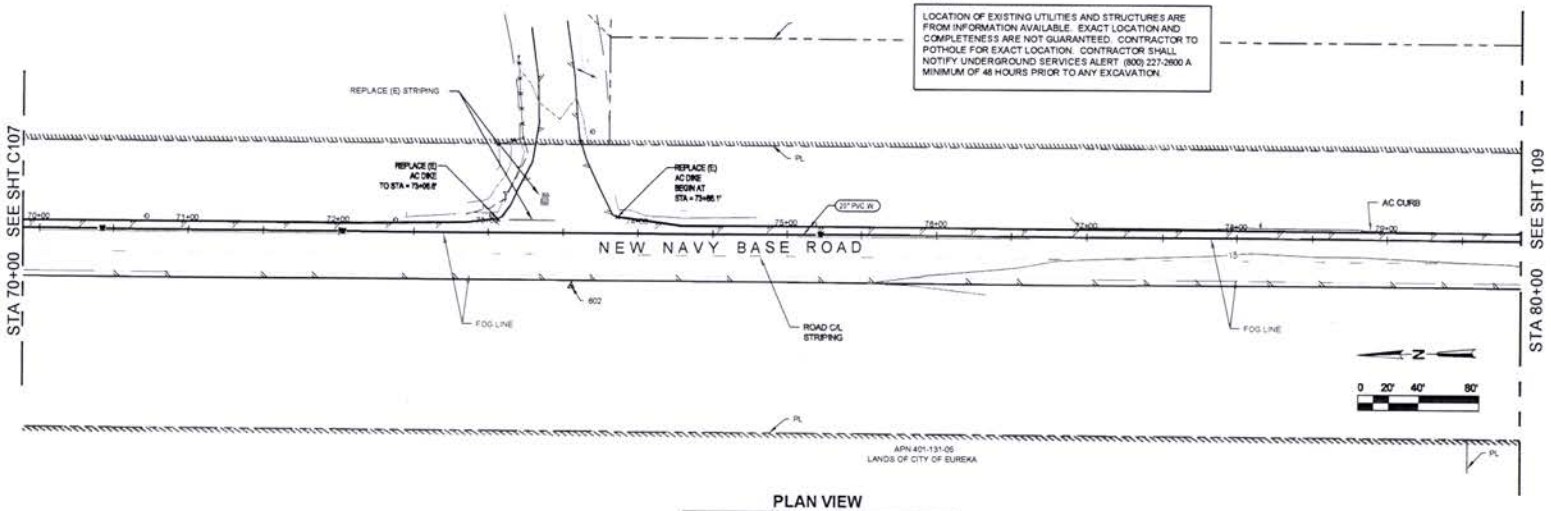
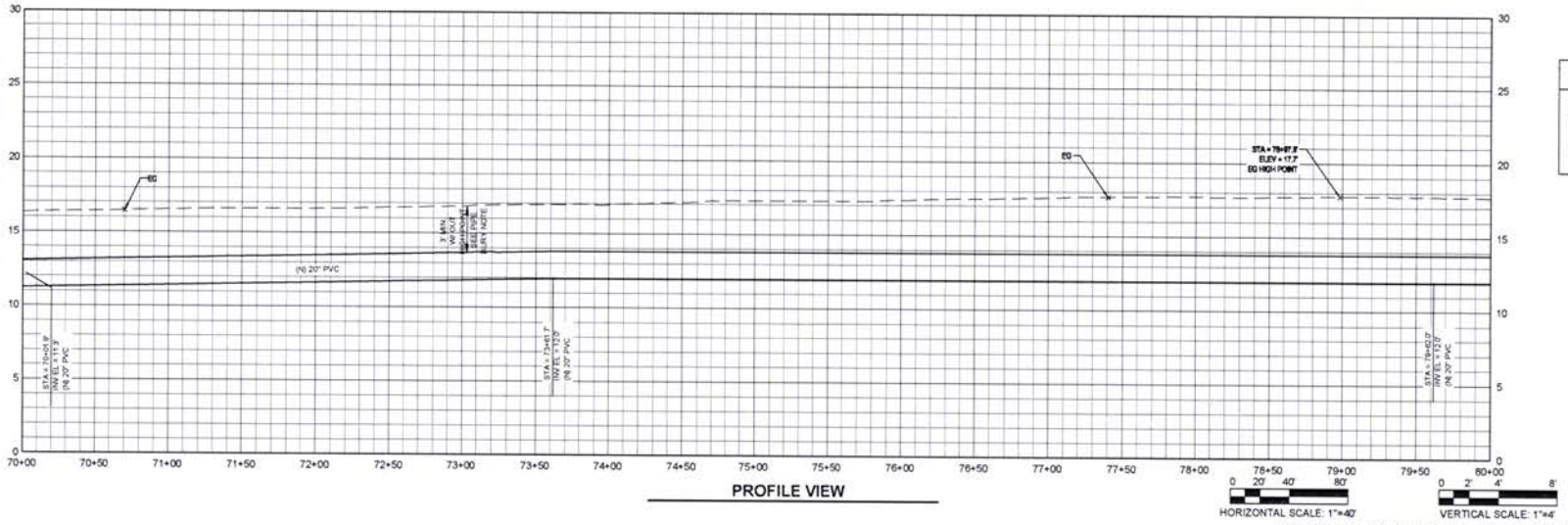


PLAN VIEW



PROFILE VIEW

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEET G103 FOR HORIZONTAL CONTROL.
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN.
4. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
5. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
6. INSTALL THRUST BLOCKS OR RESTRAINED FITTINGS PER 3/C501
7. MINIMIZE BENDS BY UTILIZING PIPE DEFLECTION WITHOUT EXCEEDING THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

100% SUBMITTAL NOT FOR CONSTRUCTION

No	Revision	Drawn	Job Manager	Project Director	Date
-	-	-			-

Plot Date: 10 October 2013 - 2:38 PM Plotted by: Yoash Tiles

Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\06-CAD\Sheets\01055101C106-C110.dwg

REGISTERED PROFESSIONAL ENGINEER — PETER KANG — No. 65722 — CIVIL — STATE OF CALIFORNIA — DRAFT

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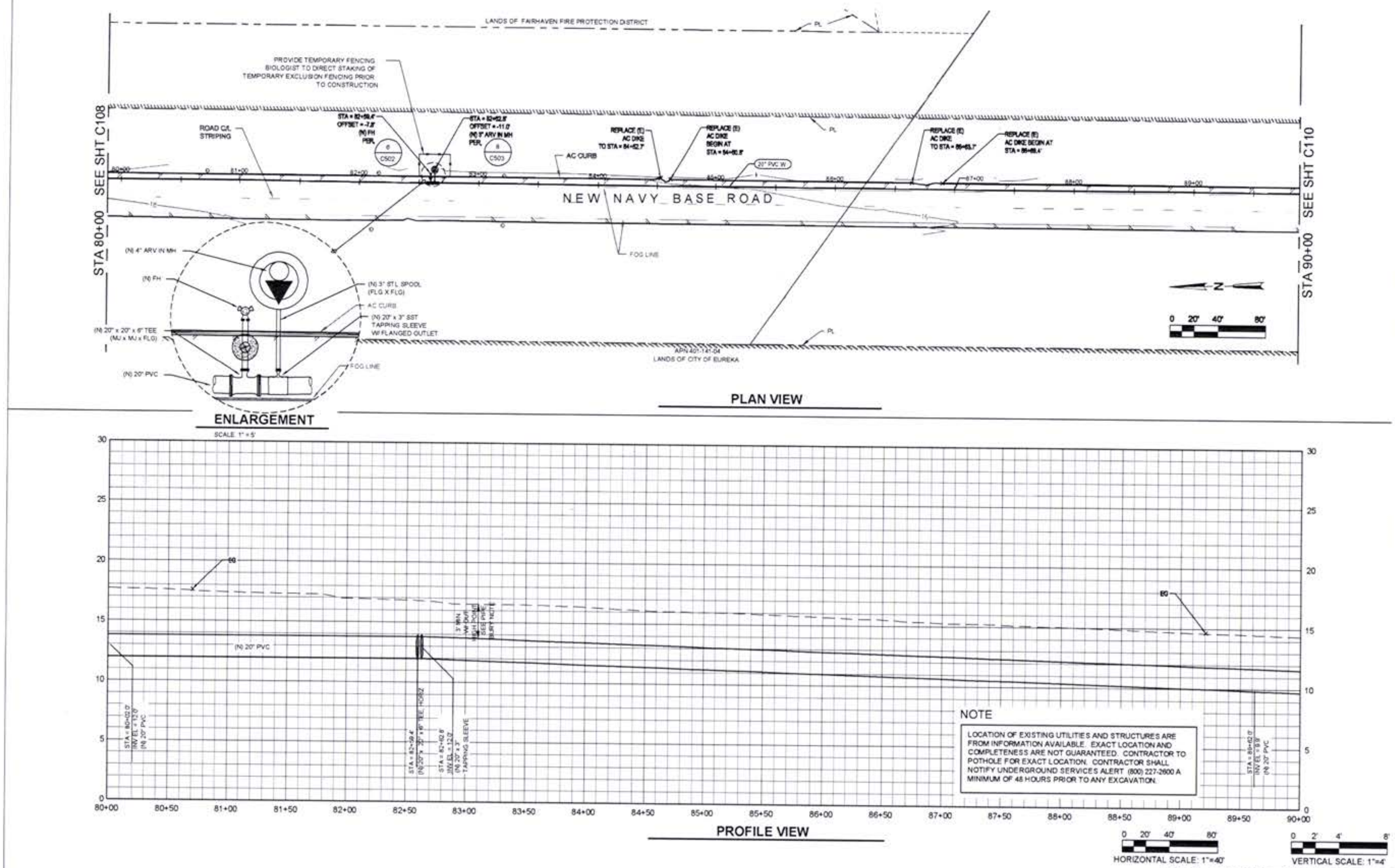
Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN		

This Drawing shall not be used for Construction unless Signed and Sealed For Construction

Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE TRANSMISSION MAIN STA 70+00 TO STA 80+00
Contract No: 01055-11-012
Original Size: Ansi D
Drawing No: C108
Sht 15 of 35
Rev:



SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEET G103 FOR HORIZONTAL CONTROL
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN
4. SEE (1/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
5. SEE (2/C501) FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
6. INSTALL THRUST BLOCKS OR RESTRAINED FITTINGS PER (3/C501)
7. MINIMIZE BENDS BY UTILIZING PIPE DEFLECTION WITHOUT EXCEEDING THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION

REVEGETATION NOTE

SEE SHEET C504 FOR REQUIRED REVEGETATION AREA

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date

Plot Date: 10 October 2013 - 2:18 PM Plotted by: Yoash Tilles

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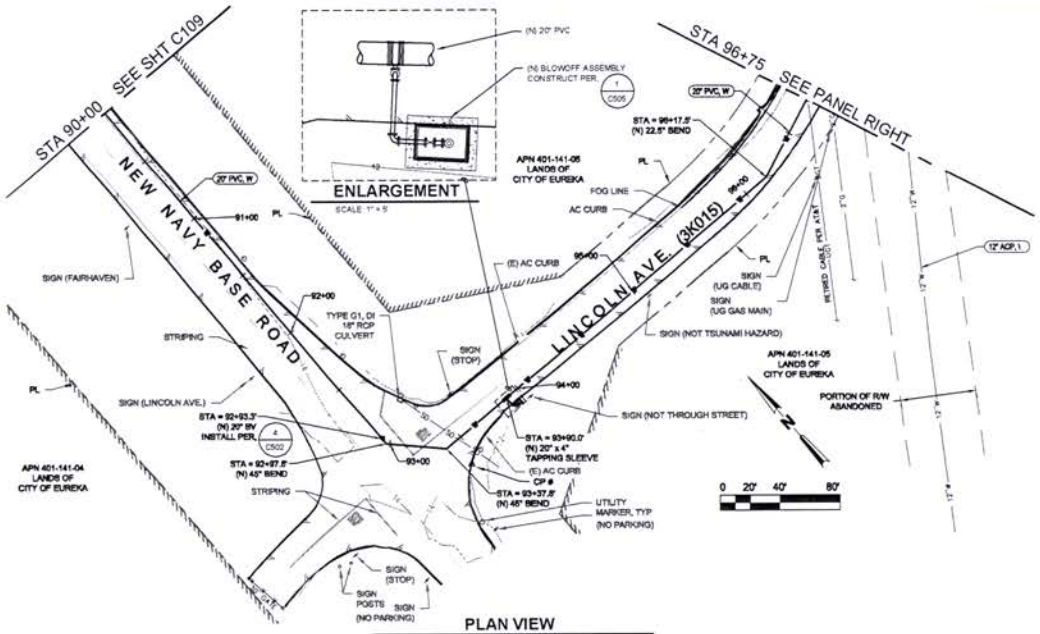
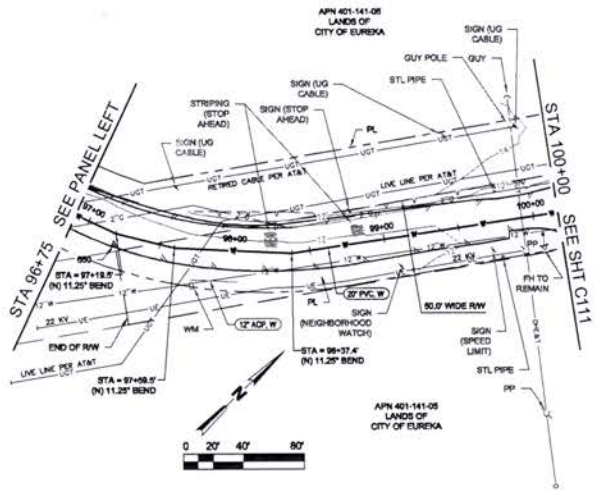
DRAFT

Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE TRANSMISSION MAIN STA 80+00 TO STA 90+00
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C109

Sht 16 of 35
Rev:



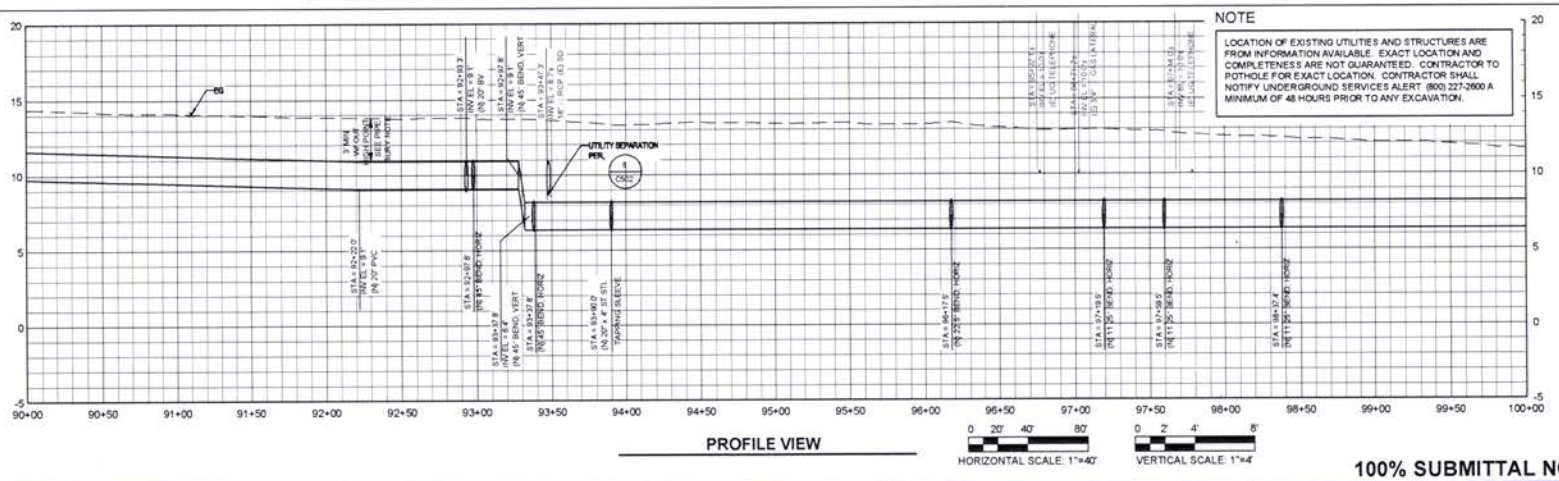
PLAN VIEW



PLAN VIEW

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEET G103 FOR HORIZONTAL CONTROL.
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN.
4. SEE 1 / C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY.
5. SEE 2 / C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS.
6. INSTALL THRUST BLOCKS OR RESTRAINED FITTINGS PER 3 / C501.
7. MINIMIZE BENDS BY UTILIZING PIPE DEFLECTION WITHOUT EXCEEDING THE MANUFACTURER'S ALLOWABLE PIPE DEFLECTION.



PROFILE VIEW

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-				-

REGISTERED PROFESSIONAL ENGINEER — PK 55722 — CIVIL — STATE OF CALIFORNIA — DRAFT

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Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN		

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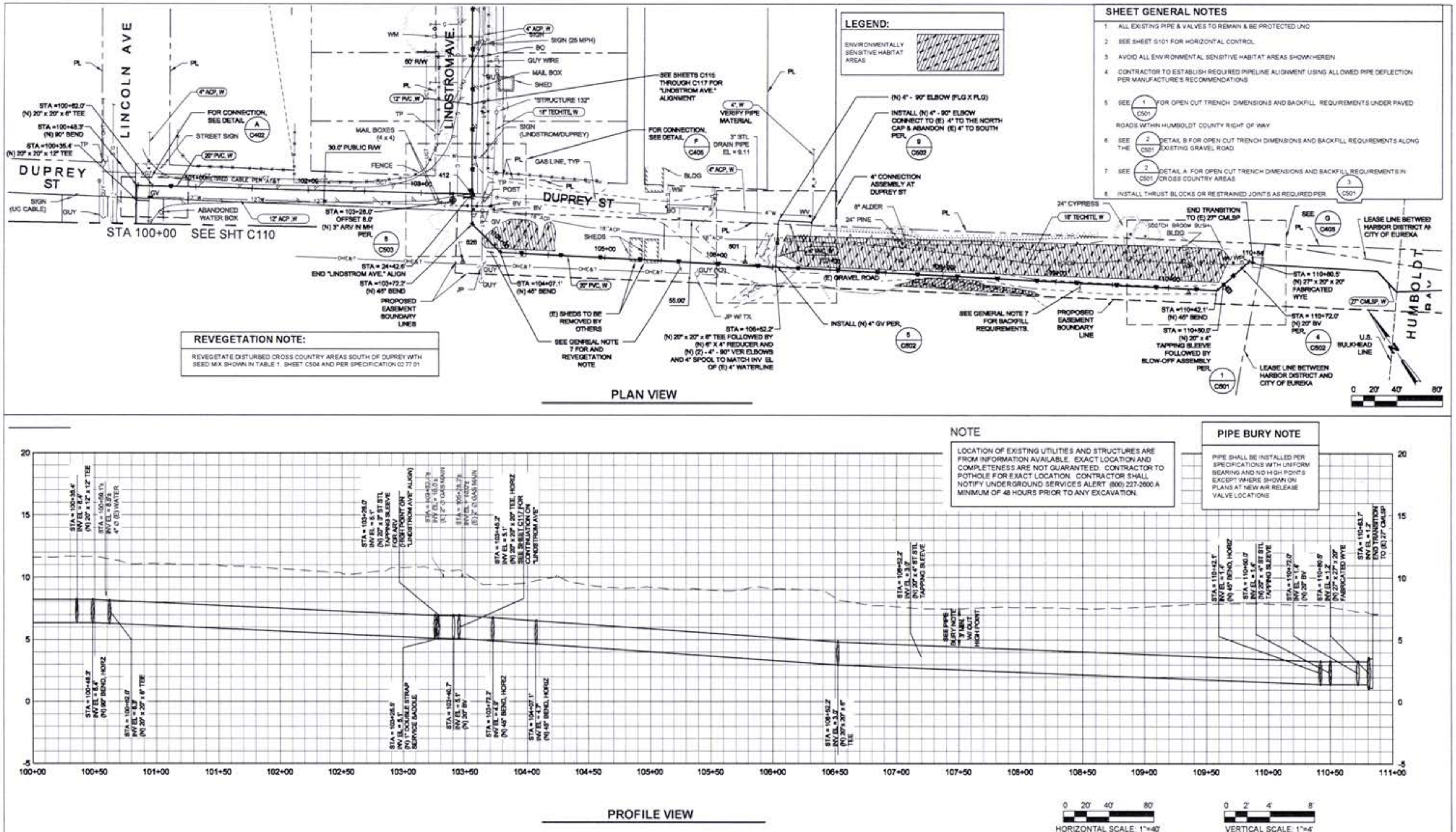
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE TRANSMISSION MAIN STA 90+00 TO STA 100+00
Contract No. 01055-11-012
Original Size: Arial D
Drawing No: C110
Sht 17 of 35
Rev:

Plot Date: 10 October 2013 - 2:38 PM | Plotted By: Yoash Tiles | Cad File No: G:\01055 HBMWD\01055-11-012 Techite\Pipeline\Replacement\06-CAD\Sheets\01055101C106-C110.dwg



SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEET G101 FOR HORIZONTAL CONTROL
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN
4. CONTRACTOR TO ESTABLISH REQUIRED PIPELINE ALIGNMENT USING ALLOWED PIPE DEFLECTION PER MANUFACTURE'S RECOMMENDATIONS
5. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
6. SEE THE 2/C501 DETAIL B FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS ALONG EXISTING GRAVEL ROAD
7. SEE 2/C501 DETAIL A FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN CROSS COUNTRY AREAS 3/C501
8. INSTALL THRUST BLOCKS OR RESTRAINED JOINTS AS REQUIRED PER

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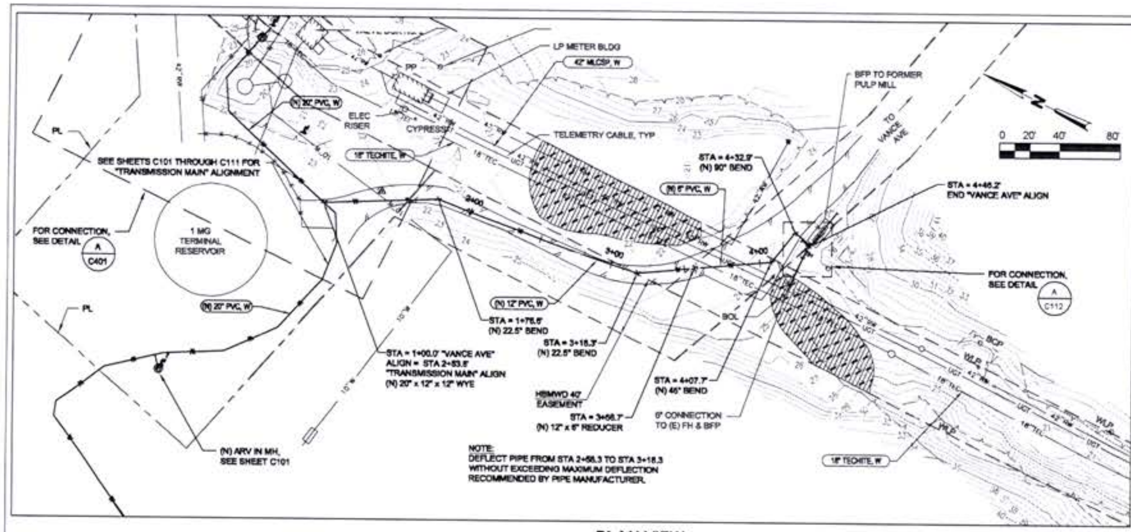
DRAFT

Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE TRANSMISSION MAIN STA 100+00 TO END
Date		Contract No	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C111 Sheet 18 of 35 Rev:

No Revision Note: * indicates signatures on original issue of drawing or last revision of drawing Drawn Job Manager Project Director Date

Plot Date: 10 October 2013 - 2:39 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055112C111.dwg



PLAN VIEW

NOTE

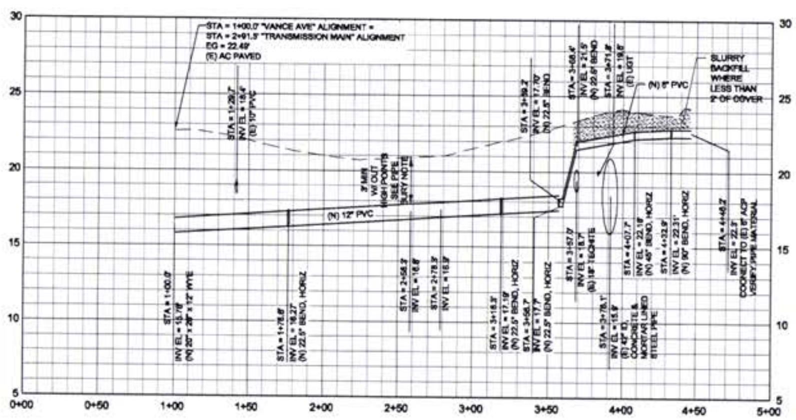
LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL.
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER THIS PAVED ROAD
4. INSTALL THRUST BLOCKS OR RESTRAINED JOINTS AS REQUIRED PER 3/C501

LEGEND:

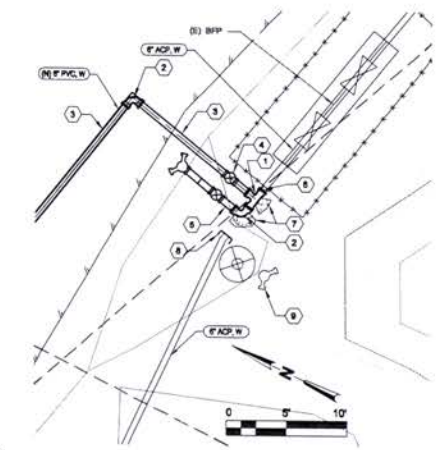
ENVIRONMENTALLY SENSITIVE HABITAT AREAS



PROFILE VIEW

0 20' 40' 80' HORIZONTAL SCALE: 1"=40'

0 2' 4' 8' VERTICAL SCALE: 1"=4'



A / C112 CONNECTION DETAIL - VANCE AVE

KEYNOTES - CONNECTION DETAIL - A

1. (N) 6" x 6" x 6" TEE, HORZ
2. (N) 6" - 90° ELBOW, HORZ
3. (N) 6" SPOOL
4. (N) 6" GATE VALVE. INSTALL PER 6/C502
5. (N) FIRE HYDRANT ASSEMBLY PER 6/C502
6. CONNECT 6" PVC TO BACK FLOW PREVENTER (FLG x FLG). SEE SHEET C101 FOR 6" STL ELEVATION. CONTRACTOR TO VERIFY MATERIAL, OUTSIDE AND INSIDE DIAMETER AND INVERT ELEVATION OF EXISTING PIPE PRIOR TO MAKING CONNECTION
7. (N) THRUST BLOCK PER 3/C501
8. CAP AND ABANDON IN PLACE 6" STL
9. CAP AND ABANDON FIRE HYDRANT ASSEMBLY. REMOVE FIRE HYDRANT

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Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project	TECHITE PIPELINE REPLACEMENT PROJECT
Title	PLAN & PROFILE VANCE AVE STA 1+00 TO END & CONNECTION DETAIL
Contract No.	01055-11-012
Original Size	Ansi D
Drawing No:	C112
Sheet	19 of 35
Rev:	

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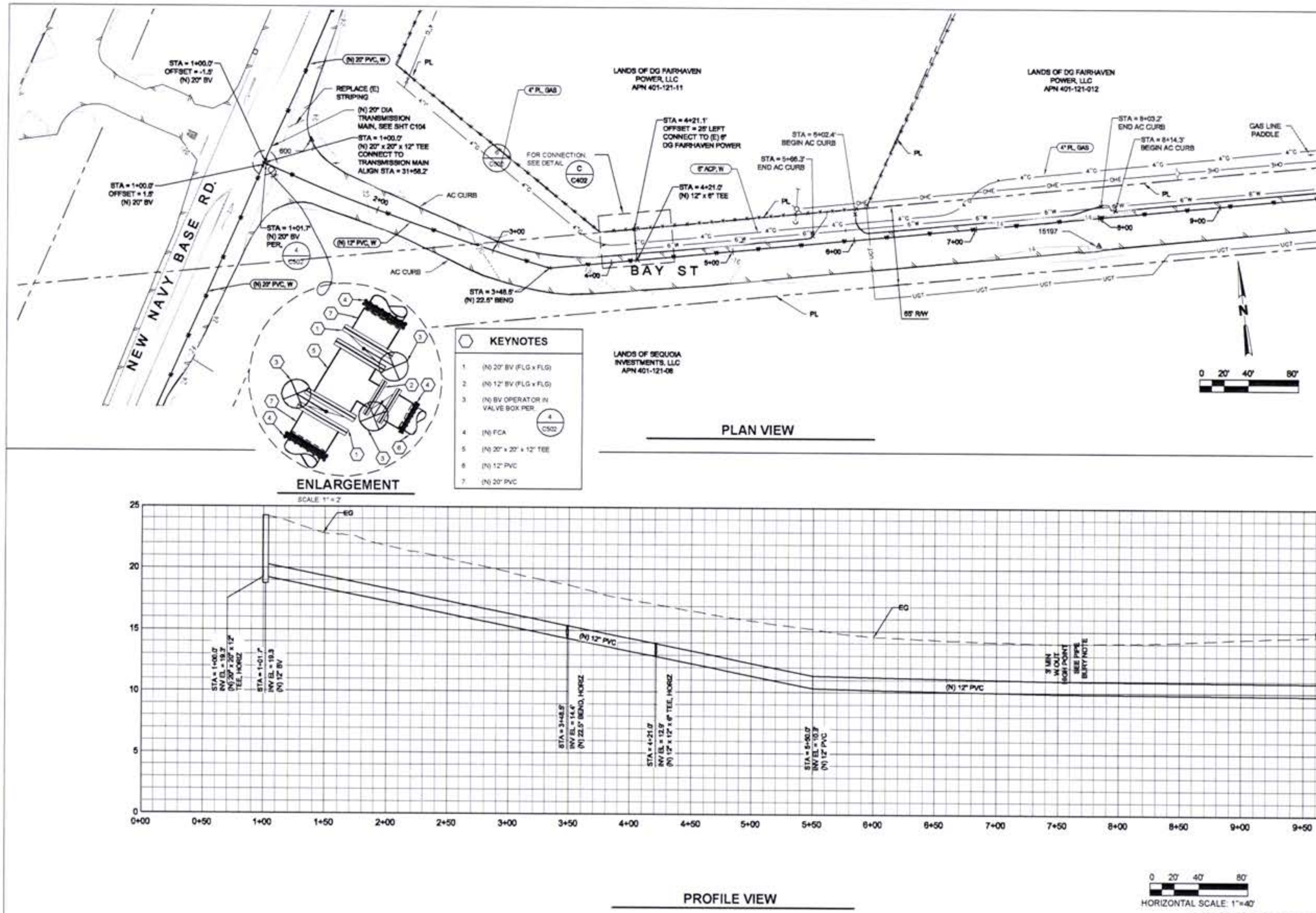
Plot Date: 10 October 2013 - 2:40 PM · Plotted by: Yoash Tilles · Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\08-CAD\Sheets\01055110120112.dwg



KEYNOTES

1. (N) 20" BV (FLG x FLG)
2. (N) 12" BV (FLG x FLG)
3. (N) BV OPERATOR IN VALVE BOX PER 4/C502
4. (N) FCA
5. (N) 20" x 20" x 12" TEE
6. (N) 12" PVC
7. (N) 20" PVC

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL.
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY.
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS.
5. INSTALL THRUST BLOCKS OR RESTRAINED JOINTS PER 3/C501.

NOTE

LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS.

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

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Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE BAY ST STA 1+00 TO STA 10+00
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C113

Sheet 20 of 35 Rev:

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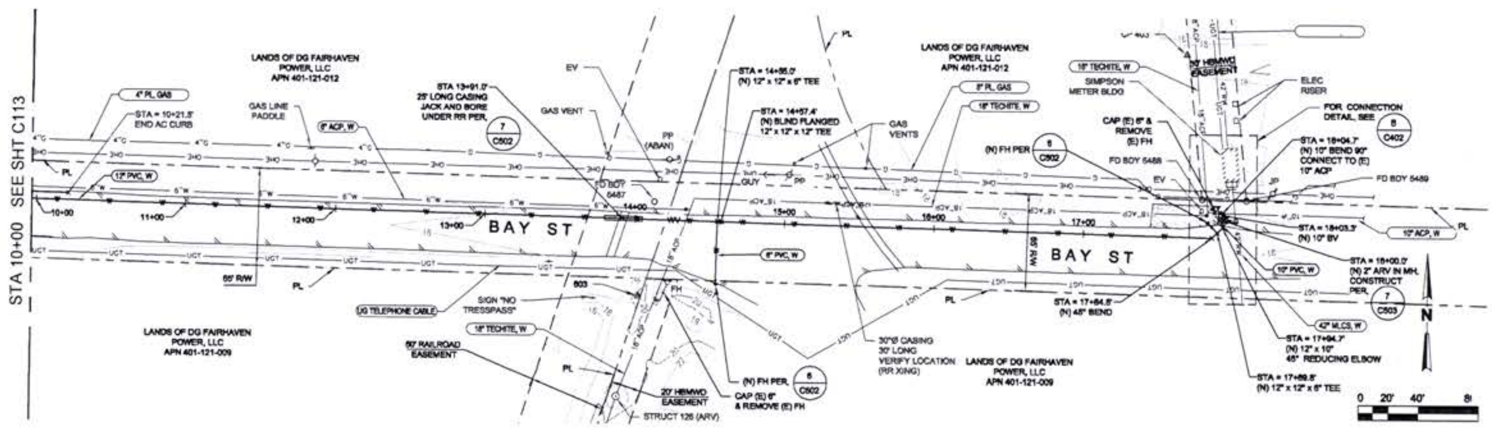
Plot Date: 10 October 2013 - 2:40 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110120113-C114.dwg

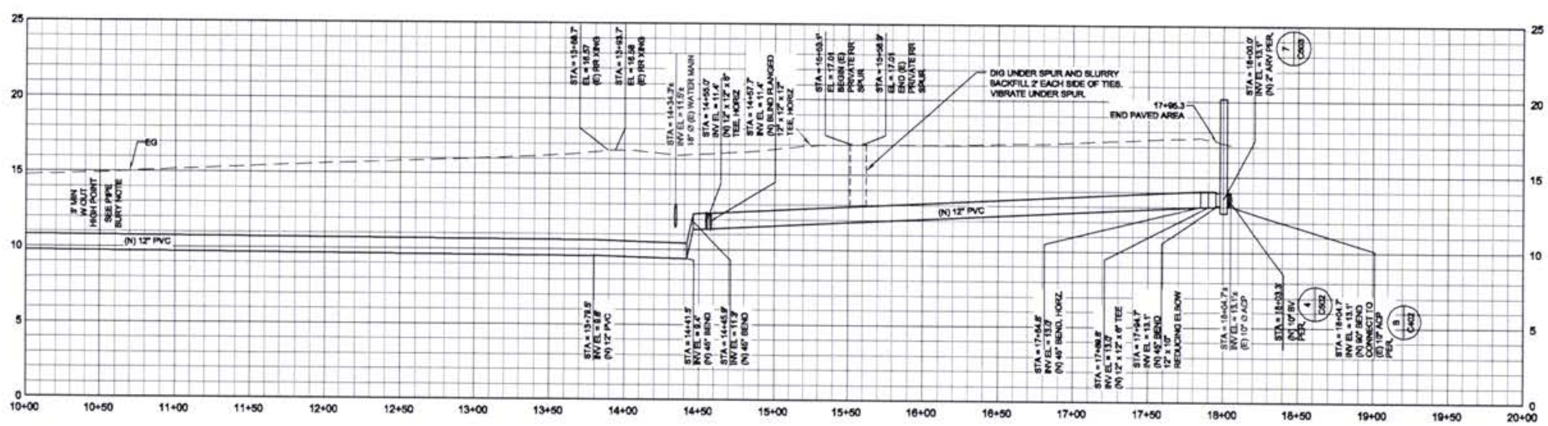


NOTE

LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEETS G103 & G104 FOR HORIZONTAL CONTROL
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THRUST BLOCKS OR RESTRAINED JOINTS PER 3/C501



PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS.

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

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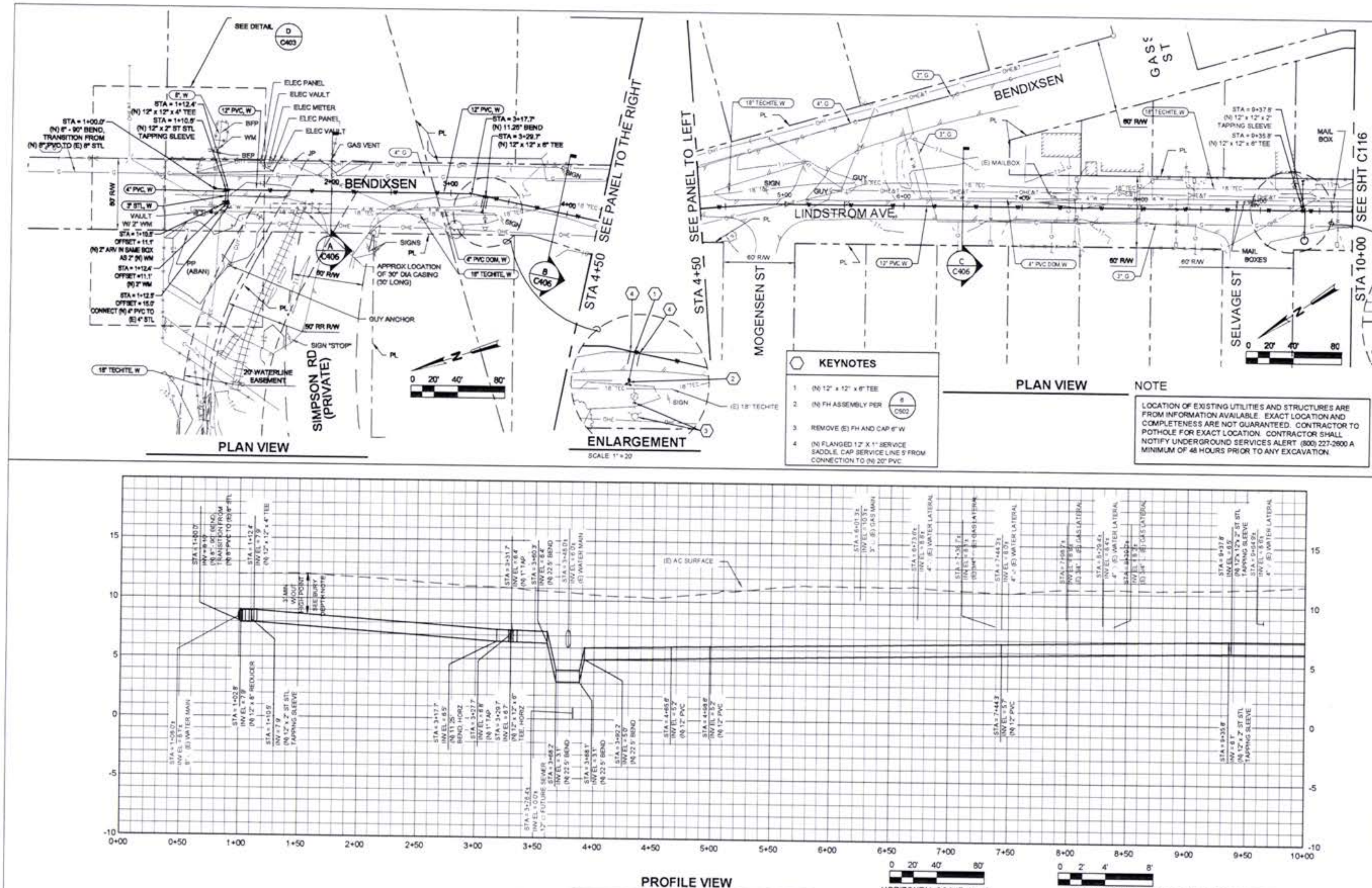
Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE BAY ST STA 10+00 TO END
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C114
		Sht 21 of 35	Rev:

Plot Date: 10 October 2013 - 2:40 PM



KEYNOTES

1. (N) 12" x 12" x 6" TEE
2. (N) FH ASSEMBLY PER 6/C502
3. REMOVE (E) FH AND CAP 6" W
4. (N) FLANGED 12" X 1" SERVICE SADDLE, CAP SERVICE LINE 5' FROM CONNECTION TO (N) 20" PVC

KEYNOTES

1. (N) 12" x 12" x 6" TEE
2. (N) FH ASSEMBLY PER 6/C502
3. REMOVE (E) FH AND CAP 6" W
4. (N) 2" STL PIPE
5. (N) 2" COMBINATION AIR VALVE IN MH PER 7/C503

NOTE

LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. SEE SHEET G103 AND G104 FOR HORIZONTAL CONTROL
3. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
4. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
5. INSTALL THRUST BLOCKS AS REQUIRED PER 3/C501

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS.

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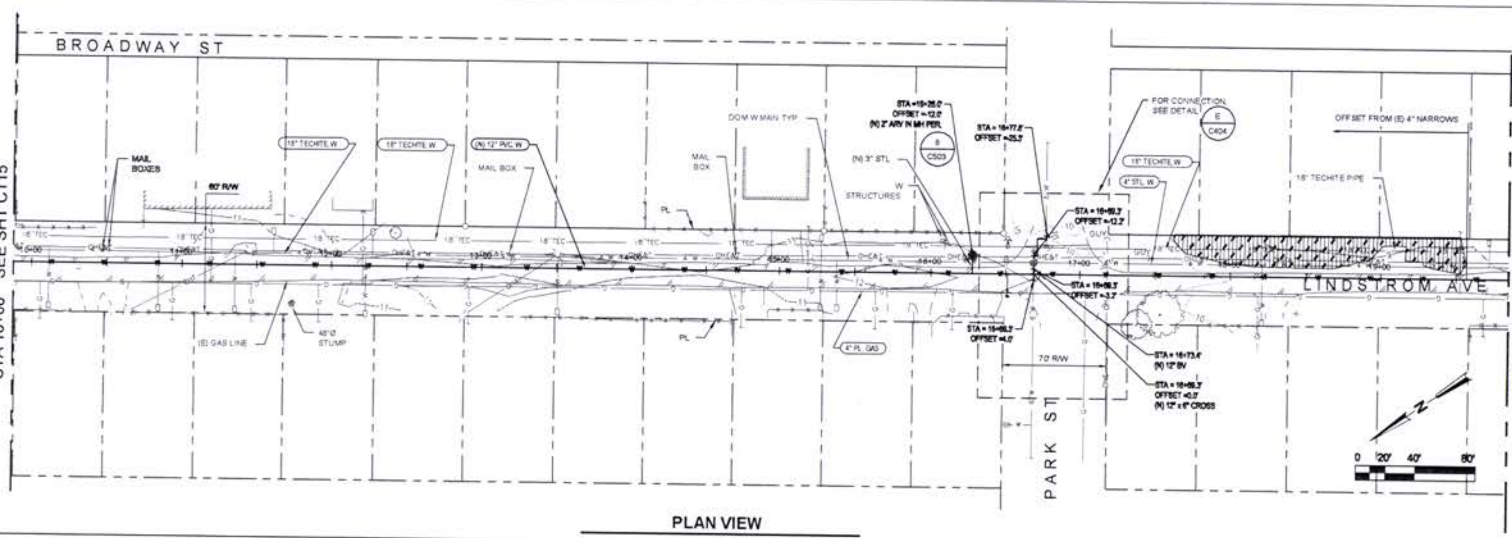
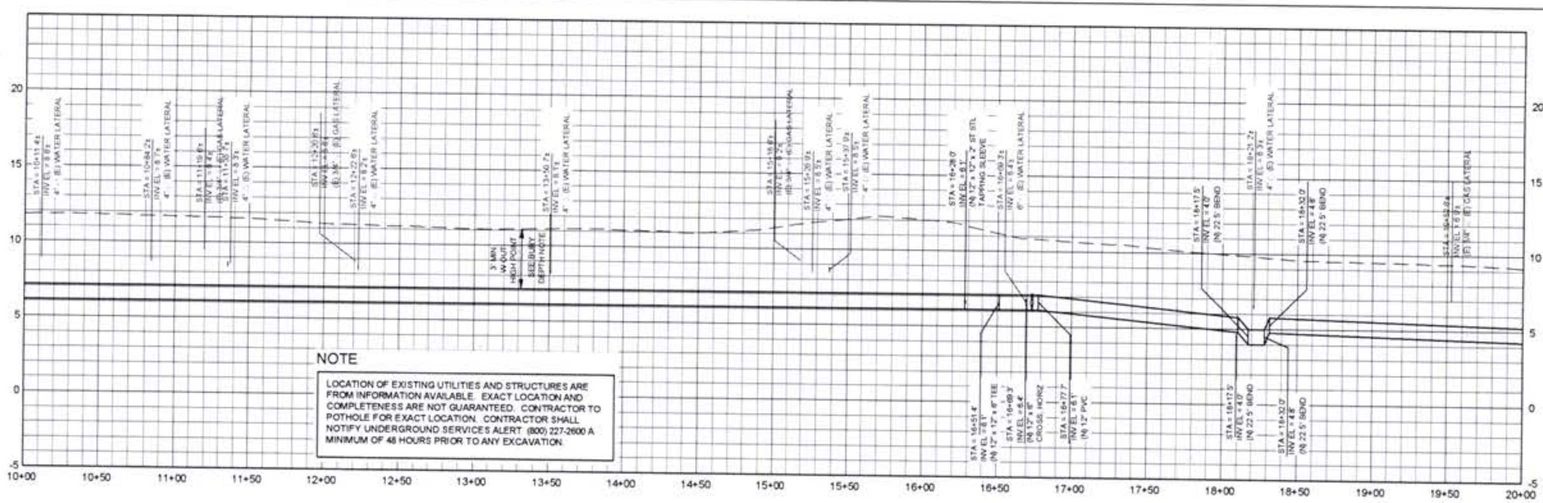
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: PLAN & PROFILE LINDSTROM AVE
STA 1+00 TO STA 10+00

Contract No. 01055-11-012
Original Size: Ansi D | Drawing No: C115 | Sheet 22 of 35 | Rev:



PLAN VIEW



PROFILE VIEW

0 20' 40' 80'
HORIZONTAL SCALE: 1"=40'

0 2' 4' 8'
VERTICAL SCALE: 1"=4'

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEET G101 FOR HORIZONTAL CONTROL
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN. SEE NOTES ON SHEET G003. SEE SHEETS G102 & G103 FOR ACCESS ROUTS, STAGING AREAS AND RECOMMENDED PIT LOCATIONS
4. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
5. SEE 2/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN UNPAVED AREAS
6. INSTALL THRUST BLOCKS OR RETRAINED JOINTS AS REQUIRED PER 3/C501

LEGEND:

ENVIRONMENTALLY SENSITIVE HABITAT AREAS

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

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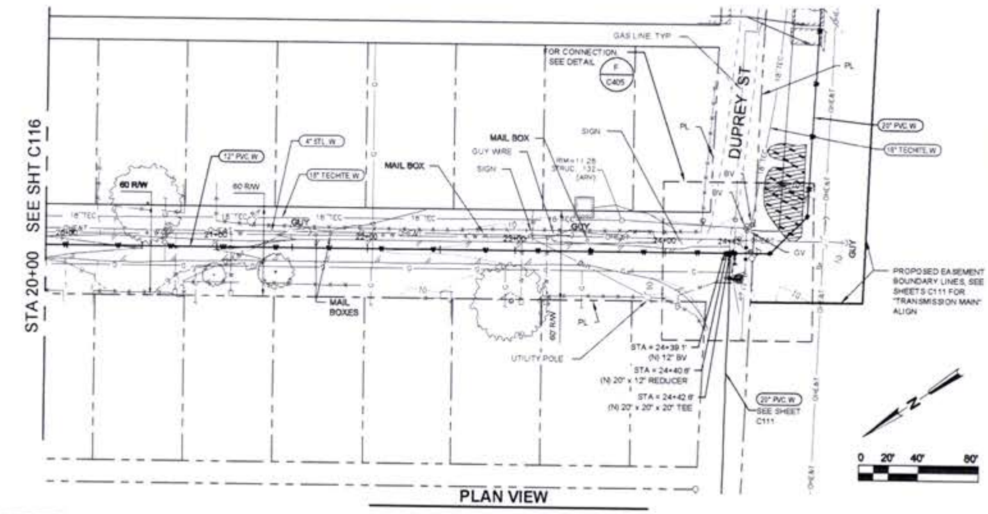
Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	PLAN & PROFILE LINDSTROM AVE STA 10+00 TO STA 20+00
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C116

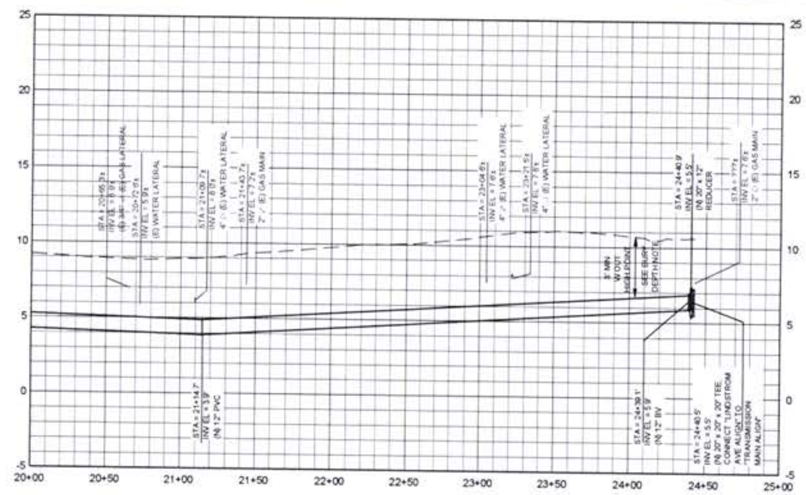
Sht 23 of 35
Rev:

No | Revision | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date

Plot Date: 10 October 2013 - 2:41 PM | Plotted by: Yoash Tiles | Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055101\2C116-117.dwg



PLAN VIEW



PROFILE VIEW

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. SEE SHEET G101 FOR HORIZONTAL CONTROL
3. AVOID ALL ENVIRONMENTAL SENSITIVE HABITAT AREAS SHOWN HEREIN. SEE NOTES ON SHEET G003. SEE SHEETS G102 & G103 FOR ACCESS ROUTS, STAGING AREAS AND RECOMMENDED PIT LOCATIONS
4. CONTRACTOR TO ESTABLISH REQUIRED DRILL PATH INCLUDING BUT NOT LIMITED TO ENTRY AND EXIT ANGLES, BEND RADIUS AND BURY DEPTH BASED ON FRAC-OUT ANALYSIS
5. SEE 1/C501 FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS UNDER PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY
6. SEE 2/C501 DETAIL A FOR OPEN CUT TRENCH DIMENSIONS AND BACKFILL REQUIREMENTS IN CROSS COUNTRY AREAS
7. INSTALL THRUST BLOCKS AS REQUIRED PER 3/C501

LEGEND:

ENVIRONMENTALLY SENSITIVE HABITAT AREAS

NOTE

LOCATION OF EXISTING UTILITIES AND STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

PIPE BURY NOTE

PIPE SHALL BE INSTALLED PER SPECIFICATIONS WITH UNIFORM BEARING AND NO HIGH POINTS EXCEPT WHERE SHOWN ON PLANS AT NEW AIR RELEASE VALVE LOCATIONS

100% SUBMITTAL NOT FOR CONSTRUCTION

Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project	TECHITE PIPELINE REPLACEMENT PROJECT
Title	PLAN & PROFILE LINDSTROM AVE STA 20+00 TO END
Contract No	01055-11-012
Original Size	Ansi D
Drawing No	C117
Sht	24 of 35
Rev	

Drawn SJD/YT · Designer YT · Drafting Check PK · Design Check PK · Approved (Project Director) · Date · Scale AS SHOWN

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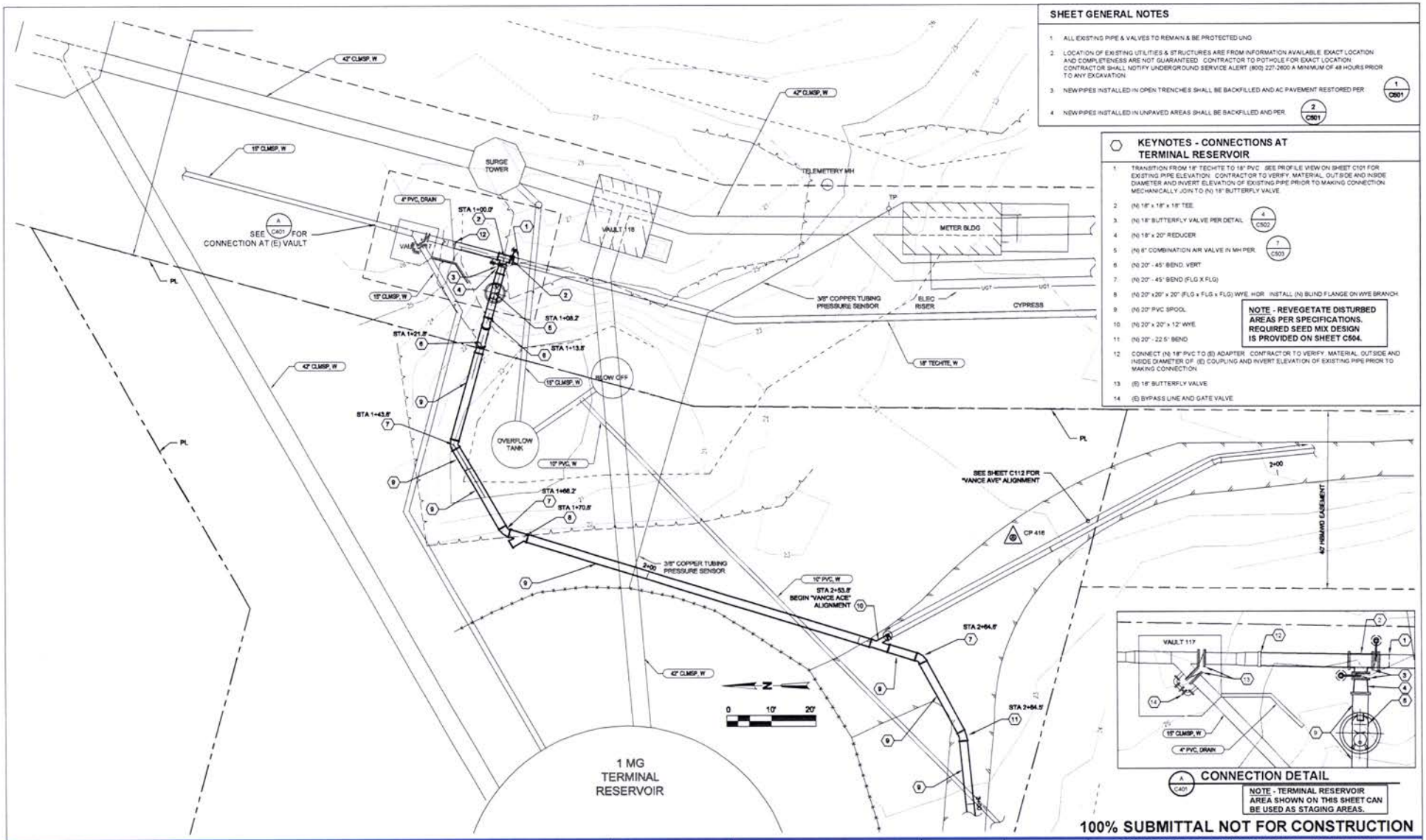
No | Revision | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date

Plot Date 10 October 2013 - 2:41 PM · Plotted by Yeash Tiles



SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.
3. NEW PIPES INSTALLED IN OPEN TRENCHES SHALL BE BACKFILLED AND AC PAVEMENT RESTORED PER 1/C601.
4. NEW PIPES INSTALLED IN UNPAVED AREAS SHALL BE BACKFILLED AND PER. 2/C601.

KEYNOTES - CONNECTIONS AT TERMINAL RESERVOIR

1. TRANSITION FROM 18" TECHTE TO 18" PVC. SEE PROFILE VIEW ON SHEET C101 FOR EXISTING PIPE ELEVATION. CONTRACTOR TO VERIFY MATERIAL, OUTSIDE AND INSIDE DIAMETER AND INVERT ELEVATION OF EXISTING PIPE PRIOR TO MAKING CONNECTION. MECHANICALLY JOIN TO (N) 18" BUTTERFLY VALVE.
2. (N) 18" x 18" x 18" TEE.
3. (N) 18" BUTTERFLY VALVE PER DETAIL 4/C502.
4. (N) 18" x 20" REDUCER
5. (N) 6" COMBINATION AIR VALVE IN MH PER. 7/C503.
6. (N) 20" - 45° BEND, VERT
7. (N) 20" - 45° BEND (FLG X FLG)
8. (N) 20" x20" x 20" (FLG x FLG x FLG) WYE, HOR. INSTALL (N) BLIND FLANGE ON WYE BRANCH.
9. (N) 20" PVC SPOOL
10. (N) 20" x 20" x 12" WYE
11. (N) 20" - 22.5° BEND
12. CONNECT (N) 18" PVC TO (E) ADAPTER. CONTRACTOR TO VERIFY MATERIAL, OUTSIDE AND INSIDE DIAMETER OF (E) COUPLING AND INVERT ELEVATION OF EXISTING PIPE PRIOR TO MAKING CONNECTION.
13. (E) 18" BUTTERFLY VALVE
14. (E) BYPASS LINE AND GATE VALVE

NOTE - REVEGETATE DISTURBED AREAS PER SPECIFICATIONS. REQUIRED SEED MIX DESIGN IS PROVIDED ON SHEET C504.

CONNECTION DETAIL

A/C401

NOTE - TERMINAL RESERVOIR AREA SHOWN ON THIS SHEET CAN BE USED AS STAGING AREAS.

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No	Revision	Note: * indicates signatures on original in case of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
*	*		*			*

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Drawn	SJD/YT	Designer	YT
Drafting Check	PK	Design Check	PK
Approved (Project Director)			
Date			
Scale	AS SHOWN		

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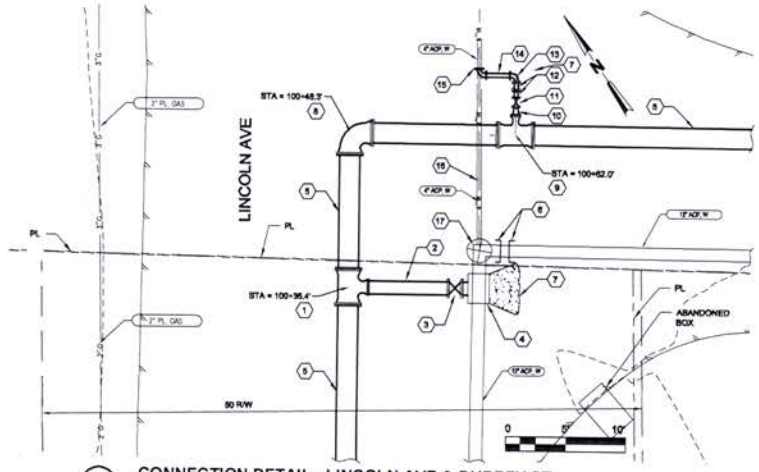
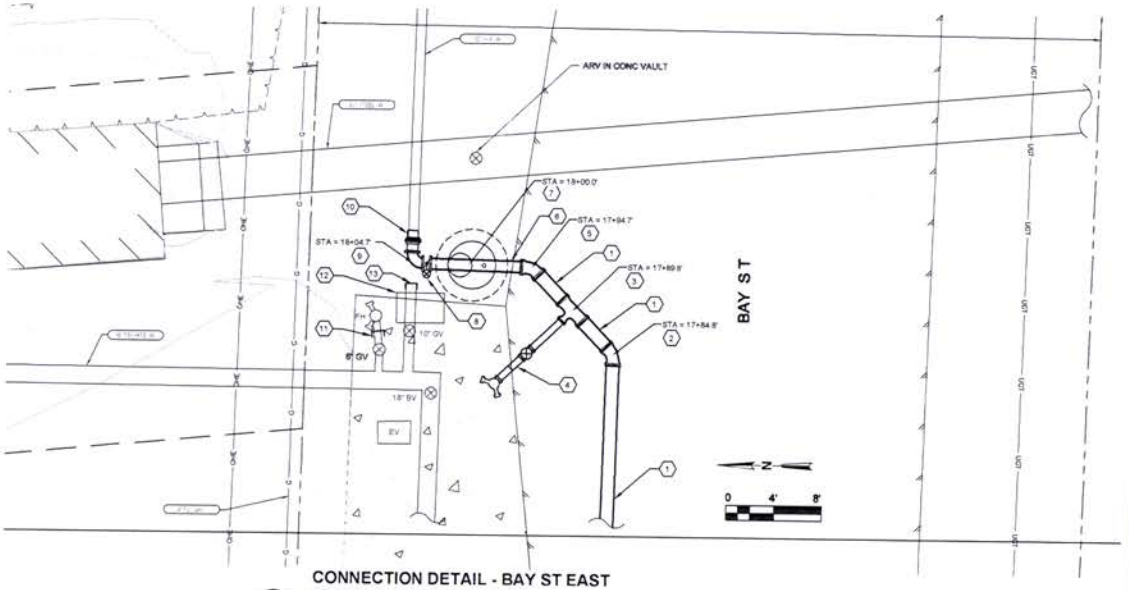
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: YARD PIPING & CONNECTION DETAIL AT TERMINAL RESERVOIR
Contract No. 01055-11-012
Original Size: Arch D
Drawing No: C401
Sht 25 of 35
Rev:

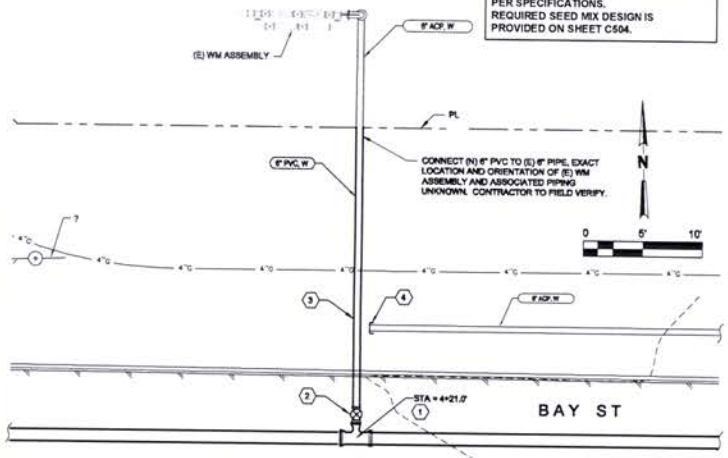
Plot Date: 10 October 2013 - 2:42 PM Plotted By: Yuan, Tifen
Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\06-CAD\Sheets\01055101C0401.dwg



A C402 CONNECTION DETAIL - LINCOLN AVE & DUPREY ST



B C402 CONNECTION DETAIL - BAY ST EAST (CA REDWOOD COMPANY)



C C402 CONNECTION DETAIL - BAY ST WEST (DG FAIRHAVEN COMPANY)

NOTE - RE-VEGETATE DISTURBED AREAS PER SPECIFICATIONS. REQUIRED SEED MIX DESIGN IS PROVIDED ON SHEET C504.

KEYNOTES - CONNECTION DETAIL - A

1. (N) 20" x 20" x 12" DI TEE (MJ X MJ X FLG)
2. (N) 12" SPOOL (FLG x FLG)
3. (N) 12" BUTTERFLY VALVE, INSTALL PER DETAIL 5/C502
4. (N) 12" x 12" x 12" TAPPING SLEEVE (NON-RESTRAINED) ROMAC SERIES STAINLESS STEEL OR APPROVED EQUAL. DETERMINE (E) ASBESTOS CEMENT PIPE OD AND PROVIDE SHOP DRAWING FOR MATCHING SLEEVE FOR APPROVAL BY ENGINEER PRIOR TO INSTALLATION
5. (N) 12" PVC SPOOL
6. PLUG AND ABANDON (E) 12" ACP PER DETAIL 9/C502
7. WRAP WITH PLASTIC AND INSTALL THRUST BLOCK PER 3/C501
8. (N) 12" - 90° ELBOW
9. (N) 20" X 20" X 6" DI TEE (MJ X MJ X FLG)
10. (N) 6" X 4" REDUCER (FLG X FLG)
11. (N) 4" GV INSTALL PER 5/C502
12. (N) 4" DI 22.5° BEND (FLG X FLG)
13. (N) 4" DI 90° BEND (FLG X FLG)
14. (N) DI SPOOL 2' LONG (FLG X FLG)
15. TRANSITION TO 4" ACP
16. ABANDON (E) 4" ACP
17. REMOVE (E) 4" GV

KEYNOTES - CONNECTION DETAIL - C

1. (N) 20" x 20" x 6" DI TEE, HOR (MJ x MJ X FLG)
2. (N) 6" GATE VALVE, INSTALL PER DETAIL 5/C502
3. (N) 6" SPOOL
4. PLUG AND ABANDON IN PLACE (E) 6" ACP PER DETAIL 9/C502

NOTE - CONNECTION DETAILS ARE FOR AID OF CONTRACTOR ONLY. CONTRACTOR RESPONSIBLE FOR ALL FITTINGS AND PIPE LENGTHS NECESSARY TO MAKE CONNECTION.

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR T O ANY EXCAVATION
3. CONTRACTOR MAY ELECT TO INSTALL EITHER THRUST BLOCKS OR RESTRAINED JOINTS PER DETAIL 3/C501

KEYNOTES - CONNECTION DETAIL B

1. (N) 12" PVC SPOOL
2. (N) 12" - 45° BEND, RESTRAINED
3. (N) 12" TEE
4. (N) FH ASSEMBLY PER DETAIL 6/C502
5. (N) 10" x 12" 45° REDUCING ELBOW, RESTRAINED
6. (N) 10" SPOOL
7. (N) ARV IN MH PER DETAIL 7/C505
8. (N) 10" BV PER DETAIL 4/C502
9. (N) 10" - 90° BEND, RESTRAINED
10. SEE SHEET C103 FOR PROFILE ELEVATION VIEW OF EXISTING 10" ACP TRANSITION TO 10" ACP
11. PLUG 8" ACP AND REMOVE FH
12. REMOVE WATER METER BOX (NO METER INSIDE)
13. CAP 10" ACP

NOTE - RE-VEGETATE DISTURBED AREAS PER SPECIFICATIONS. REQUIRED SEED MIX DESIGN IS PROVIDED ON SHEET C504.

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-				-

Plot Date: 10 October 2013 - 2:42 PM Plotted by: Yiseh Tiller
Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\09-CAD\Sheets\01055110123C402.dwg

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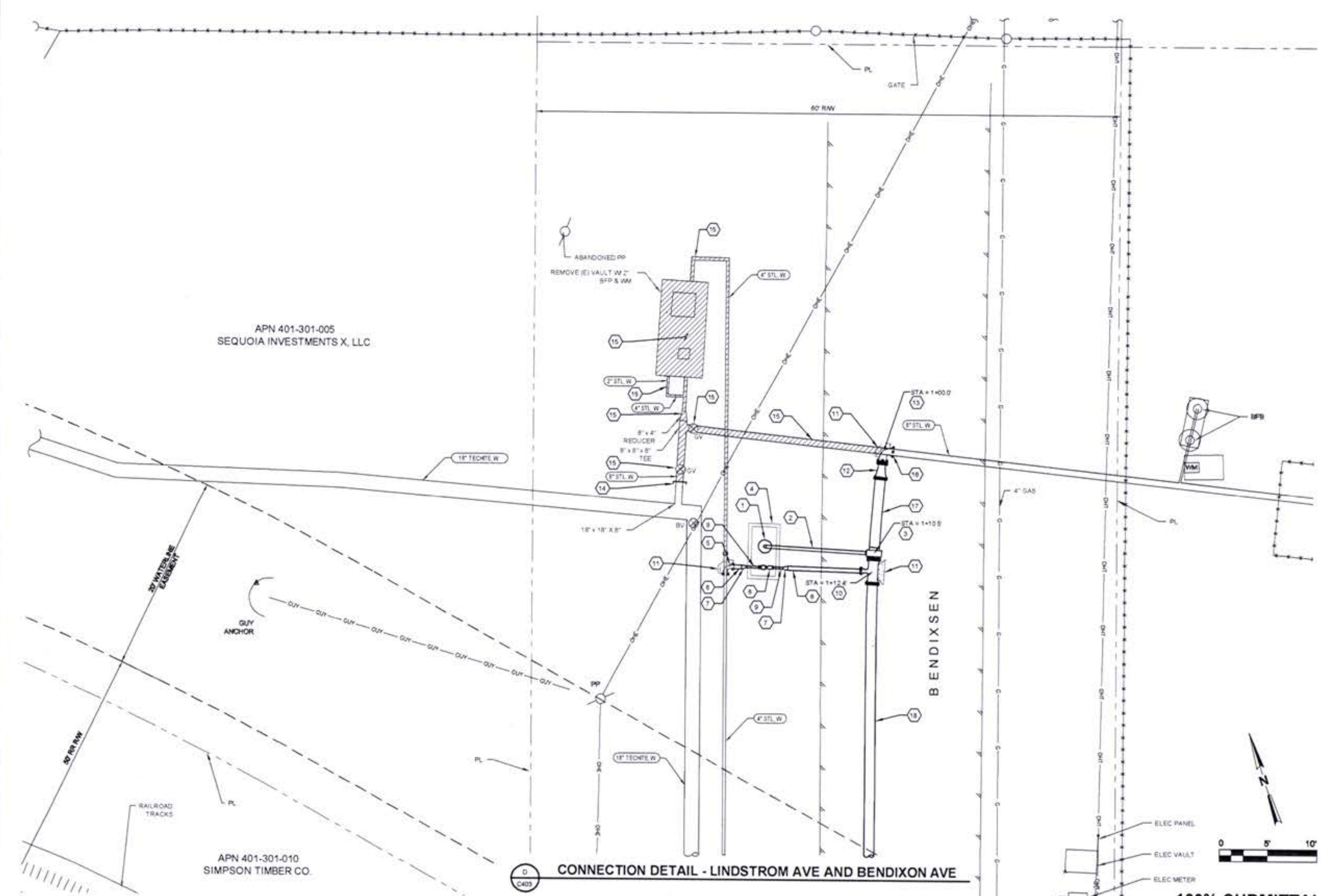
Drawn: SJD/YT		Designer: YT	
Drafting Check: PK		Design Check: PK	
Approved (Project Director):			
Date:			
Scale: AS SHOWN		This Drawing shall not be used for Construction unless Signed and Sealed For Construction	

Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: CONNECTION DETAIL LINCOLN AVE & DUPREY ST
CONNECTION DETAIL BAY ST TO DG POWER
Contract No: 01055-11-012
Original Size: Arad D
Drawing No: C402
Rev: -



CONNECTION DETAIL - LINDSTROM AVE AND BENDIXON AVE

D / C403

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.
3. NEW PIPES INSTALLED IN OPEN TRENCHES SHALL BE BACKFILLED AND AC PAVEMENT RESTORED PER 1/C501
4. PROVIDE THRUST BLOCKS PER 3/C501

KEYNOTES - CONNECTION DETAIL - D

1. (N) 2" COMBINATION AIR VALVE. INSTALL IN 80" x 36" CHRIST BOX (12" HIGH) WITH BOX EXTENSIONS AS NEEDED. INSTALL (N) WM IN SAME BOX.
2. (N) 2" STL SPOOL (FLG x FLG)
3. (N) 12" x 2" DOUBLE STRAP SADDLE TAP
4. (N) PRECAST CONC VALVE BOX (30"x60" CLEAR INSIDE). OLDCASTLE PRECAST R17P24 OR APPROVED EQUAL
5. (N) 4" - 90° BEND
6. (N) 4" PVC SPOOL
7. (N) 4" x 2" REDUCER
8. (N) 2" TURBINE FLOW METER WITH INTEGRAL STRAINER, BADGER METER MODEL TURBO 200 OR APPROVED EQUAL
9. (N) 2" STL SPOOL
10. (N) 12" x 12" x 4" TEE
11. (N) THRUST BLOCK PER DETAIL 3/C501
12. (N) 12" x 8" REDUCER
13. (N) 8" 90° BEND
14. PLUG EXISTING 8" STEEL PIPE PER DETAIL 9/C502
15. REMOVE AND DISPOSE OF (E) CONCRETE WATER METER VAULT, AND ASSOCIATED PIPING AND VALVES BACKFILL PER SPECIFICATIONS
16. TRANSITION TO 8" STEEL PIPE. SEE PROFILE VIEW ON SHEET C115 FOR EXISTING PIPE ELEVATIONS. CONTRACTOR TO VERIFY MATERIAL, OUTSIDE AND INSIDE DIAMETER AND INVERT ELEVATION OF EXISTING PIPE PRIOR TO MAKING CONNECTION.
17. 12" PVC RESTRAINED SPOOLS
18. 12" PVC

TO BE REMOVED

0 5' 10'

NOTE - CONNECTION DETAIL FOR AID OF CONTRACTOR ONLY. CONTRACTOR RESPONSIBLE FOR ALL FITTINGS AND PIPE LENGTHS NECESSARY TO MAKE CONNECTION.

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-			-	-

Note: * indicates signatures on original issue of drawing or last revision of drawing

Plot Date 10 October 2013 - 2:43 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110120403-C405.dwg

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Date
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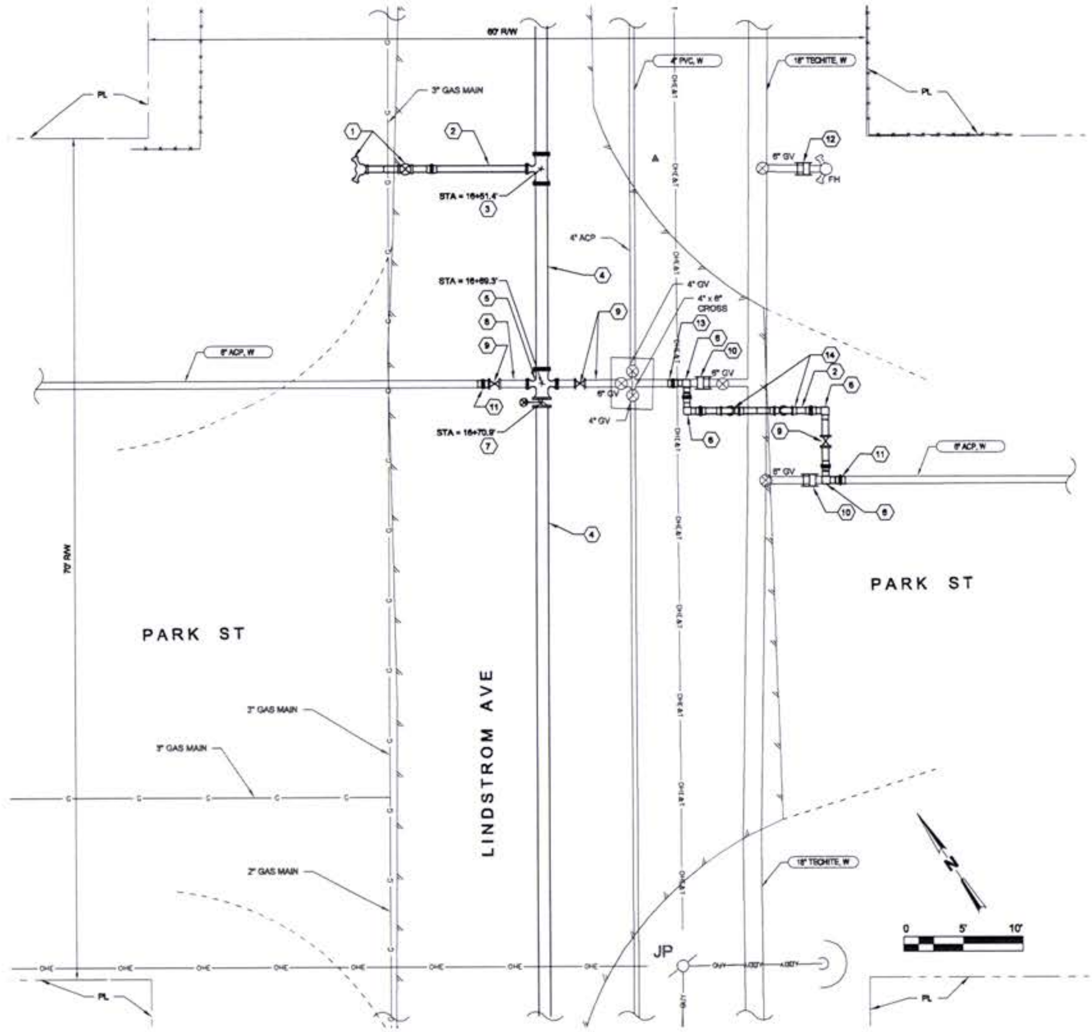
Client HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project TECHITE PIPELINE REPLACEMENT PROJECT
Title CONNECTION DETAIL 1 - FAIRHAVEN
Contract No. 01055-11-012
Original Size Ansi D Drawing No: C403
Sht 27 of 35
Rev:



CONNECTION DETAIL - LINDSTROM AVE AND PARK ST (E / C404)

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO.
2. LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POTHOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.
3. NEW PIPES INSTALLED IN OPEN TRENCHES SHALL BE BACKFILLED AND AC PAVEMENT RESTORED PER 1/C501
4. PROVIDE EITHER THRUST BLOCKS OR RETRAINED JOINTS PER 3/C501

KEYNOTES - CONNECTION DETAIL - D

1. (N) FH ASSEMBLY PER 5/C502
2. (N) 6" SPOOL
3. (N) 12" x 12" x 6" TEE
4. (N) 12" PVC SPOOL
5. (N) 12" x 6" CROSS
6. (N) 6" - 90° BEND W/ RESTRAINED JOINT
7. 12" BUTTERFLY VALVE PER DETAIL 3/C502
8. REMOVE PORTION OF 6" ACP AT THE PROPOSED LOCATION OF TRANSITION FROM 12" PVC TO 6" ACP PIPE.
9. (N) 6" GATE VALVE PER DETAIL 5/C502
10. PLUG (E) 6" ACP ON TECHITE SIDE PER DETAIL 9/C502
11. TRANSITION TO 6" ACP. SEE PROFILE VIEW ON SHEET C109 FOR EXISTING PIPE ELEVATION. CONTRACTOR TO VERIFY MATERIAL OUTSIDE AND INSIDE DIAMETER AND INVERT ELEVATION OF EXISTING PIPE PRIOR TO MAKING CONNECTION.
12. PLUG (E) 6" PVC AND REMOVE FH
13. TRANSITION TO 6" ACP W/ FLANGE COUPLING ADAPTOR
14. (4) - (N) 6" 90° VERT BEND (FLG x FLG) W/ (2) - 6" SPOOLS

NOTE - CONNECTION DETAIL FOR AID OF CONTRACTOR ONLY. CONTRACTOR RESPONSIBLE FOR ALL FITTINGS AND PIPE LENGTHS NECESSARY TO MAKE CONNECTION.

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-			-	-

Note: * indicates signatures on original issue of drawing or last revision of drawing

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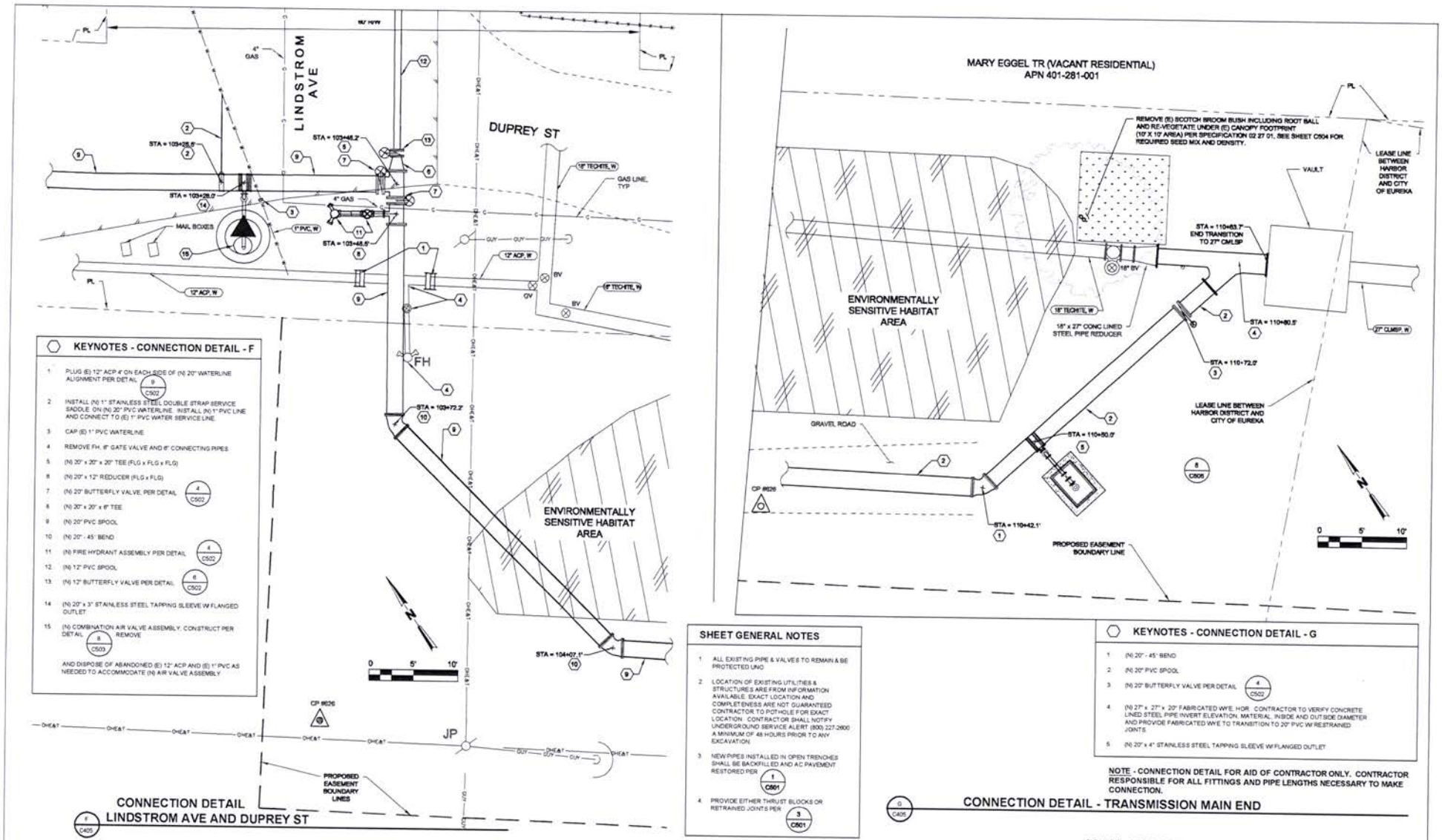
Drawn SJD/YT	Designer YT	Client	HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check PK	Design Check PK	Project	TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title	CONNECTION DETAIL 2 - FAIRHAVEN
Date		Contract No.	01055-11-012
Scale AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size Ansi D	Drawing No: C404

Sht 28 of 35 Rev:

Plot Date: 10 October 2013 - 2:43 PM Plotted by: Yoash Tilles Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\08-CAD\Sheets\01055110120405-C405.dwg



KEYNOTES - CONNECTION DETAIL - F

1. PLUG (E) 12" ACP 4' ON EACH SIDE OF (N) 20" WATERLINE ALIGNMENT PER DETAIL 9/C502
2. INSTALL (N) 1" STAINLESS STEEL DOUBLE STRAP SERVICE SADDLE ON (N) 20" PVC WATERLINE. INSTALL (N) 1" PVC LINE AND CONNECT TO (E) 1" PVC WATER SERVICE LINE.
3. CAP (E) 1" PVC WATERLINE
4. REMOVE FH, 8" GATE VALVE AND 8" CONNECTING PIPES
5. (N) 20" x 20" x 20" TEE (FLG x FLG x FLG)
6. (N) 20" x 12" REDUCER (FLG x FLG)
7. (N) 20" BUTTERFLY VALVE, PER DETAIL 4/C502
8. (N) 20" x 20" x 8" TEE
9. (N) 20" PVC SPOOL
10. (N) 20" - 45° BEND
11. (N) FIRE HYDRANT ASSEMBLY PER DETAIL 4/C502
12. (N) 12" PVC SPOOL
13. (N) 12" BUTTERFLY VALVE PER DETAIL 6/C503
14. (N) 20" x 3" STAINLESS STEEL TAPPING SLEEVE W/ FLANGED OUTLET
15. (N) COMBINATION AIR VALVE ASSEMBLY. CONSTRUCT PER DETAIL 8/C503. REMOVE AND DISPOSE OF ABANDONED (E) 12" ACP AND (E) 1" PVC AS NEEDED TO ACCOMMODATE (N) AIR VALVE ASSEMBLY

SHEET GENERAL NOTES

1. ALL EXISTING PIPE & VALVES TO REMAIN & BE PROTECTED UNO
2. LOCATION OF EXISTING UTILITIES & STRUCTURES ARE FROM INFORMATION AVAILABLE. EXACT LOCATION AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR TO POT-HOLE FOR EXACT LOCATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION
3. NEW PIPES INSTALLED IN OPEN TRENCHES SHALL BE BACKFILLED AND AC PAVEMENT RESTORED PER 1/C501
4. PROVIDE EITHER THRUST BLOCKS OR RETRAINED JOINTS PER 3/C501

KEYNOTES - CONNECTION DETAIL - G

1. (N) 20" - 45° BEND
2. (N) 20" PVC SPOOL
3. (N) 20" BUTTERFLY VALVE PER DETAIL 4/C502
4. (N) 27" x 27" x 20" FABRICATED WYE, HOR. CONTRACTOR TO VERIFY CONCRETE LINED STEEL PIPE INVERT ELEVATION, MATERIAL, INSIDE AND OUTSIDE DIAMETER AND PROVIDE FABRICATED WYE TO TRANSITION TO 20" PVC W/ RESTRAINED JOINTS
5. (N) 20" x 4" STAINLESS STEEL TAPPING SLEEVE W/ FLANGED OUTLET

NOTE - CONNECTION DETAIL FOR AID OF CONTRACTOR ONLY. CONTRACTOR RESPONSIBLE FOR ALL FITTINGS AND PIPE LENGTHS NECESSARY TO MAKE CONNECTION.

F / C405 CONNECTION DETAIL LINDSTROM AVE AND DUPREY ST

G / C405 CONNECTION DETAIL - TRANSMISSION MAIN END

100% SUBMITTAL NOT FOR CONSTRUCTION

No	Revision	Drawn	Job Manager	Project Director	Date
-	-	-			-

Plot Date: 10 October 2013 - 2:43 PM Plotted by: Yoash Tiller
Cad File No: G:\01055 HBMWD\01055-11-012 Techite Pipeline Replacement\05-CAD\Sheets\01055101C403-C405.dwg

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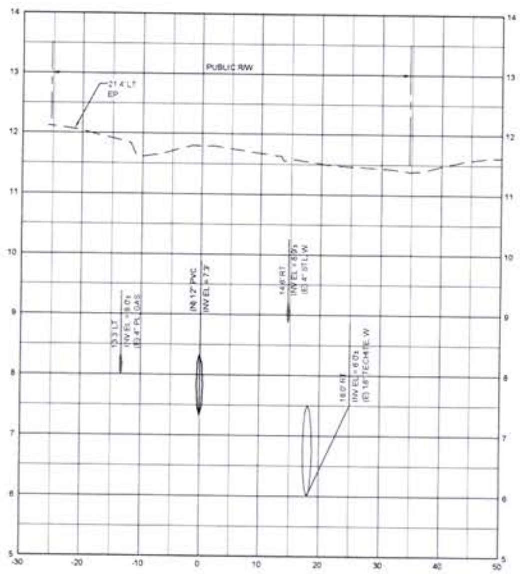
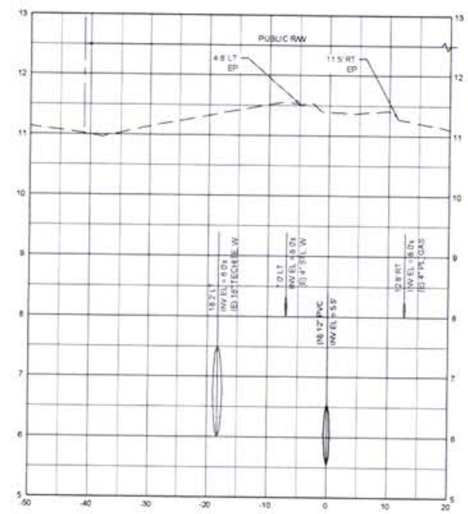
This Drawing shall not be used for Construction unless Signed and Sealed For Construction

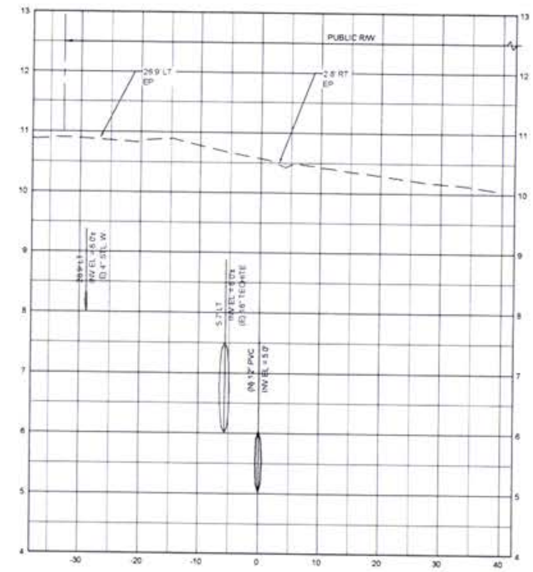
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: CONNECTION DETAIL - LINDSTROM AVE & DUPREY ST
CONNECTION DETAIL - TRANSMISSION MAIN END
Contract No: 01055-11-012
Original Size: Arial D
Drawing No: C405
Rev:



"LINDSTROM AVE" ALIGN STA 2+00
CROSS SECTION - UNDERGROUND PIPING
(A / C406)



"LINDSTROM AVE" ALIGNMENT STA 3+93
CROSS SECTION - UNDERGROUND PIPING
(B / C406)



"LINDSTROM AVE" ALIGNMENT STA 6+50
CROSS SECTION - UNDERGROUND PIPING
(C / C406)

0 10' 20' 40'
HORIZONTAL SCALE: 1"=20'

0 1' 2' 4'
VERTICAL SCALE: 1"=2'

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No	Revision	Drawn	Job Manager	Project Director	Date
-	-				-

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Plot Date: 15 October 2013 - 2:43 PM   Plotted by: Yoash Tiles

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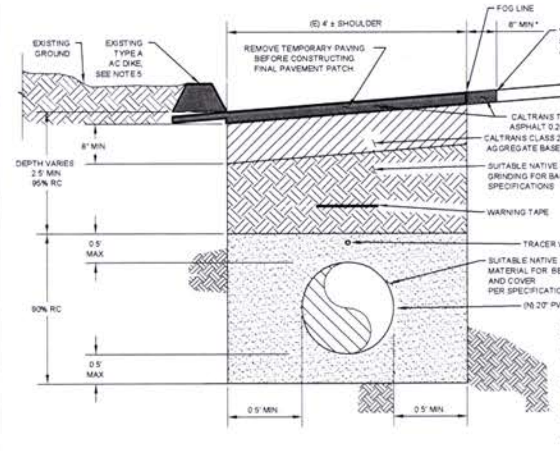
Drafting Check: PK		Design Check: PK	
Approved (Project Director)			
Date			
Scale: AS SHOWN		This Drawing shall not be used for Construction unless Signed and Sealed For Construction	

Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **LINDSTROM AVE**
CROSS SECTIONS - UNDERGROUND PIPING
Contract No. 01055-11-012
Original Size: **Ansi D**   **Drawing No: C406**
Sheet 30 of 35
Rev:

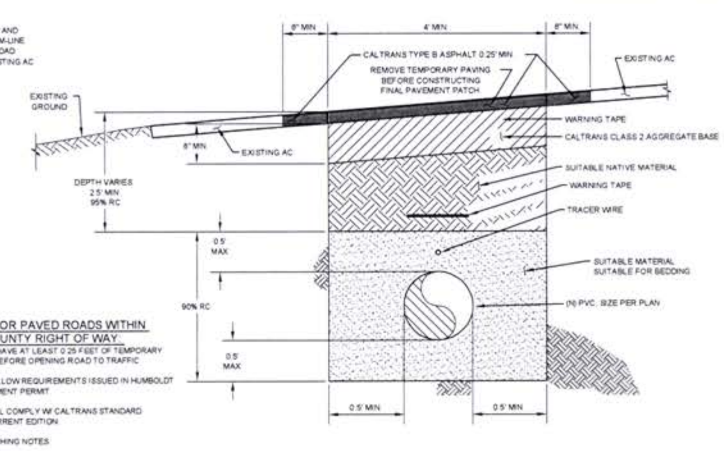


TYPICAL TRENCH DETAIL
ALONG NEW NAVY BASE ROAD

(A / C501) SCALE: NTS

TRENCH NOTES FOR PAVED ROADS WITHIN HUMBOLDT COUNTY RIGHT OF WAY:

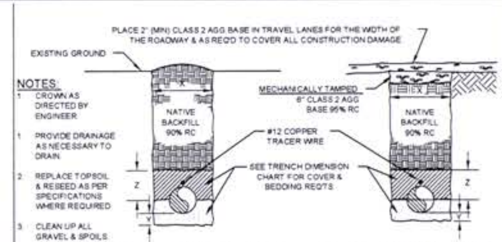
1. THE TRENCH SHALL HAVE AT LEAST 0.25 FEET OF TEMPORARY COLD MIX ASPHALT BEFORE OPENING ROAD TO TRAFFIC.
2. CONTRACTOR TO FOLLOW REQUIREMENTS ISSUED IN HUMBOLDT COUNTY ENCROACHMENT PERMIT.
3. ALL MATERIALS SHALL COMPLY W/ CALTRANS STANDARD SPECIFICATIONS, CURRENT EDITION.
4. SEE GENERAL TRENCHING NOTES.
5. REPLACE (E) AC DIKE, TYPE A PER CALTRANS STANDARD PLAN A87B AT LOCATIONS SHOWN ON PLAN AND PROFILE SHEETS.



TYPICAL TRENCH DETAIL
ALONG BAY, LINDSTROM & DUPREY STREETS

(B / C501) SCALE: NTS

(1 / C501) TRENCH DETAILS UNDER PAVED ROADS WITHIN COUNTY RIGHT OF WAY



NOTES:
1. CROWN AS DIRECTED BY ENGINEER
1. PROVIDE DRAINAGE AS NECESSARY TO DRAIN
2. REPLACE TOPSOIL & RESEED AS PER SPECIFICATIONS WHERE REQUIRED
3. CLEAN UP ALL GRAVEL & SPOILS

(A / C501) CROSS COUNTRY AREAS

(B / C501) GRAVEL ROADS SCALE: NTS

TRENCH DIMENSION CHART

	(X)		(Y)	(Z)
PIPE SIZE	TRENCH WIDTH MIN	TRENCH WIDTH MAX	BEDDING (MIN)	COVER (MIN)
6"	18	24	6"	16"
8"	22	24	6"	16"
10"	24	30	6"	16"
12"	24	30	6"	16"
14"	24	30	6"	16"
16"	24	30	12"	16"
18"	36	48	12"	17"
20"	48	48	12"	18"
24"	48	54	12"	20"

GENERAL TRENCHING NOTES:

1. WIDER TRENCHES MAY REQUIRE HIGHER STRENGTH PIPE AND/OR SPECIAL BEDDING.
2. DIFFERING TRENCH WIDTHS REQUIRE PRIOR APPROVAL OF ENGINEER.
3. IN UNSTABLE SOILS INCREASE THE TRENCH WIDTH TO 5 PIPE DIAMETERS FOR PVC PIPE.
4. IN MAKING EXCAVATIONS FOR THIS PROJECT, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING & INSTALLING ADEQUATE SHEETING, SHORING & BRACING AS MAY BE NECESSARY AS A PRECAUTION AGAINST SLIDES OR CAVE-INS, AND TO PROTECT ALL (E) IMPROVEMENTS OF ANY KIND, EITHER ON PUBLIC OR PRIVATE PROPERTY, FULLY FROM DAMAGE.
5. SEE SPECIFICATIONS FOR SITE SPECIFIC CORRECTIVE MEASURES IF GROUNDWATER IS ENCOUNTERED DURING TRENCH EXCAVATION.

(2 / C501) TRENCH DETAILS FOR UNPAVED ROADS

TEES RUN SIZE (BRANCH SIZE down; REQUIRED LENGTH OF RESTRAINED PIPE across; REQUIRED LENGTH OF RESTRAINED PIPE ON BRANCH)

BRANCH SIZE	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
3"	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'
4"		1'	1'	1'	1'	1'	1'	1'	1'	1'	1'
6"			12'	1'	1'	1'	1'	1'	1'	1'	1'
8"				39'	16'	1'	1'	1'	1'	1'	1'
10"					61'	43'	23'	6'	1'	1'	1'
12"						86'	68'	51'	34'	18'	1'
14"							108'	92'	76'	60'	29'
16"								131'	115'	100'	69'
18"									153'	138'	108'
20"										175'	145'
24"											216'

NOTE: 10' MINIMUM RESTRAINED LENGTH OF EACH SIDE OF TEE

REDUCERS (REQUIRED LENGTH OF RESTRAINED PIPE)

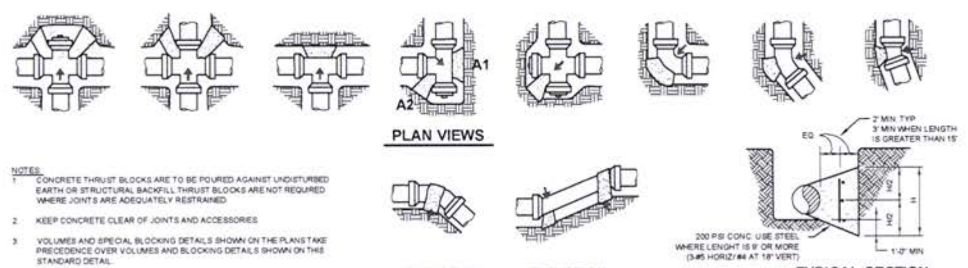
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
3"	1'	22'	64'	100'	129'	159'	186'	213'	238'	263'	310'
4"		1'	49'	88'	121'	152'	180'	208'	234'	259'	306'
6"			1'	52'	91'	127'	157'	189'	218'	244	295
8"				1'	50'	93'	130'	164'	195'	224	278'
10"					1'	52'	95'	133'	168'	200'	259'
12"						1'	51'	96'	135'	171'	234'
14"							1'	51	96	136'	206'
16"								1'	51'	96'	173'
18"									1'	51'	136'
20"										1'	95'
24"											1'

HORIZONTAL BENDS, DEAD ENDS, AND INLINE VALVES. (REQUIRED LENGTH OF RESTRAINED PIPE)

PIPE SIZE	11.5° BEND	22.5° BEND	45° BEND	90° BEND	DEAD END & INLINE VALVE
3"	2'	4'	8'	19'	56'
4"	3'	4'	10'	23'	67'
6"	4'	5'	13'	31'	94'
8"	4'	8'	17'	40'	124'
10"	5'	10'	20'	48'	148'
12"	6'	12'	24'	56'	175'
14"	7'	13'	27'	63'	199'
16"	7'	14'	30'	71'	225'
18"	8'	16'	33'	78'	249'
20"	9'	17'	35'	84'	272'
24"	10'	17'	41'	97'	317'

PVC PIPE RESTRAINED TABLES:

1. THE RESTRAINED LENGTH LISTED IN THE TABLES APPLY TO THE FOLLOWING CONDITIONS:
   - SOIL CLASSIFICATION: SP (ASTM STD. D2487)
   - TRENCH TYPE: TYPE 5 (ANSI AWWA C150/ A21.50 AND AWWA C605)
   - TEST PRESSURE: 200 PSI
   - SAFETY FACTOR: 2
   - DEPTH OF BURY: 36" ABOVE TOP OF PIPE
2. ALL MECHANICAL JOINT CONNECTIONS AT FITTINGS SHALL BE RESTRAINED.



NOTES:

1. CONCRETE THRUST BLOCKS ARE TO BE POURED AGAINST UNDISTURBED EARTH OR STRUCTURAL BACKFILL. THRUST BLOCKS ARE NOT REQUIRED WHERE JOINTS ARE ADEQUATELY RESTRAINED.
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
3. VOLUMES AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER VOLUMES AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
4. ALL BURIED PIPE EXCEPT FLANGED, SCREWED, SOLVENT WELDED PVC OR WELDED STEEL PIPE SPECIFIED TO BE PRESSURE TESTED SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTIONAL CHANGES UNLESS OTHERWISE NOTED.
5. THRUST BLOCKS SHALL NOT BE LOCATED OR SIZED TO ENCASE ADJACENT PIPES OR FITTINGS.
6. THE SIZE AND WEIGH OF ALL UPLIFT THRUST BLOCKS SHALL BE AS DETERMINED BY ENGINEER.
7. THE BEARING AREAS ARE BASED ON TEST PRESSURE OF 150 PSI AND ALLOWABLE SOIL BEARING STRESS OF 1000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
   BEARING AREA = (TEST PRESSURE / 150) x (1000 / SOIL BEARING STRESS) x (TABLE VALUE)

NOTES:
RESTRAINED JOINTS MAY BE USED IN PLACE OF THRUST BLOCKS UNO.

BEARING AREA OF THRUST BLOCK IN SQ. FT.

PIPE SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED A1	TEE PLUGGED A2	45° BEND	22 1/2° BEND	11 1/4° BEND
4	1.5	2	2	1.5	1.5	1	1
6	3	4.5	4.5	3	2.5	1.5	1
8	5	7	7	5	4	2	1
10	8	12	12	8	7	3	2
12	12	17	17	12	10	5	3
16	15	21.5	21.5	15	12	6	4

PIPE SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED A1	TEE PLUGGED A2	45° BEND	22 1/2° BEND	11 1/4° BEND
18	19	27	27	19	15	8	6
20	24	34	34	24	18	10	8
22	29	41	41	29	22	12	10
24	34	48	48	34	26.5	14	12
32	39	55	55	39	31.5	16	14

(3 / C501) STANDARD THRUST BLOCK DETAILS

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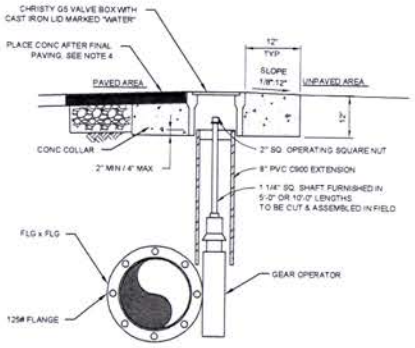
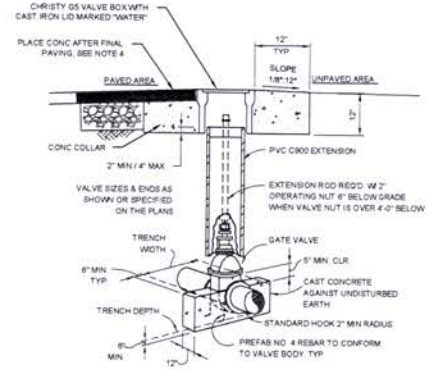
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: TRENCH & THRUST BLOCK DETAILS
Contract No. 01055-11-012
Original Size: Ansi D
Drawing No: C501
Sht 31 of 35
Rev:

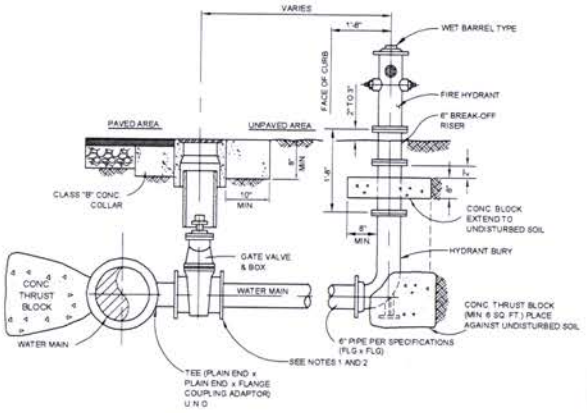




BUTTERFLY AND GATE VALVES NOTES:

1. VALVE BOX & LID SHALL BE RATED FOR AASHTO H-20 LOADINGS AS MANUFACTURED BY CHRISTY (No. G5)
2. ALL LIDES & GRADE RINGS SHALL HAVE MACHINED SEATING SURFACES
3. EXTENSIONS SHALL BE AS MANUFACTURED FOR THE VALVE BOX SUPPLIED OR HDPE OR PVC PIPE OF CORRECT SIZE CAN BE USED
4. IF VALVE BOX IS PLACED AFTER ROADWAY IS PAVED, CONSTRUCT CONC BASE TO TOP OF PAVEMENT

4 / C502 **STANDARD BUTTERFLY VALVE INSTALLATION DETAIL**

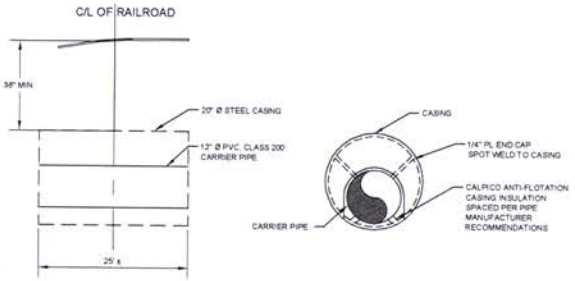


NOTE:

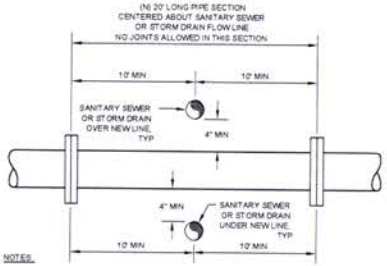
1. THRUST BLOCKS ARE NOT REQUIRED WHERE RESTRAINED JOINTS ARE USED. SEE DETAIL 3 / C501

5 / C502 **STANDARD GATE VALVE INSTALLATION DETAIL**

6 / C502 **STANDARD FIRE HYDRANT INSTALLATION DETAIL**



7 / C502 **JACK & BORE DETAIL**

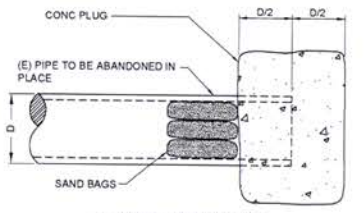


NOTES:

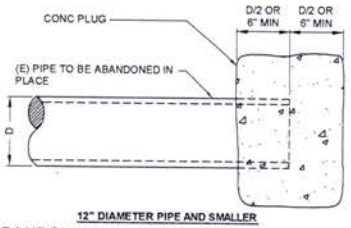
1. TRANSITION TO DIP WHEN HORIZONTAL SEPARATION LESS THAN 10-FEET, BUT NOT LESS THAN 4-FEET. IF LESS THAN 4-FEET CONSULT ENGINEER.
2. TRANSITION TO PVC DR 14 WHEN CROSSING UNDER A SANITARY SEWER OR STORM DRAIN WITH AT LEAST 4-INCHES OF CLEARANCE.
3. TRANSITION TO PVC DR 14 WHEN CROSSING OVER A SANITARY SEWER OR STORM DRAIN WITH LESS THAN 1-FOOT OF CLEARANCE (BUT NOT LESS THAN 4-INCHES OF CLEARANCE).
4. TRANSITION TO DIP WHEN CROSSING UNDER A STORM DRAIN WITH LESS THAN 4-INCHES OF SEPARATION.

UNDER ANY OF THE CROSSING SITUATIONS DESCRIBED ABOVE, THE (N) PIPE MUST BE CENTERED AT THE CROSSING, SUCH THAT THERE IS A 10-FOOT NOMINAL DISTANCE FROM THE CULVERT OR SANITARY SEWER FLOW LINE TO THE JOINTS AT THE ENDS OF THE 20-FOOT LONG WATER MAIN.

8 / C502 **STANDARD UTILITY SEPARATION DETAIL**
SCALE: NTS



15" DIAMETER PIPE AND LARGER



12" DIAMETER PIPE AND SMALLER

9 / C502 **ABANDONED PIPE PLUG**
SCALE: NTS

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*	*		*			*

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Date:	
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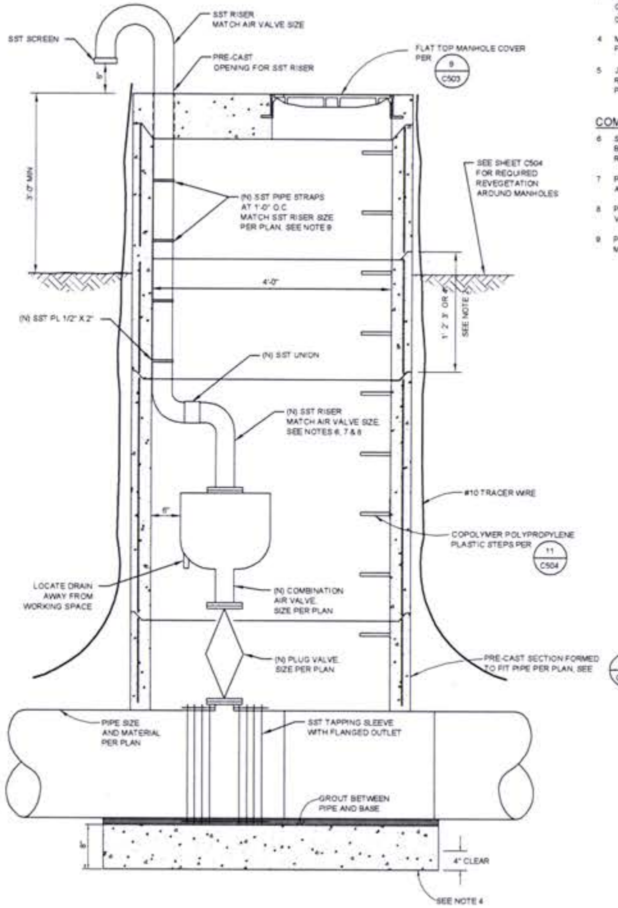
Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Project: TECHITE PIPELINE REPLACEMENT PROJECT
Title: VALVES & FIRE HYDRANT DETAILS
Contract No: 01055-11-012
Original Size: Ansi D Drawing No: C502
Sheet 32 of 35
Rev:



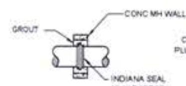
7 C503 COMBINATION AIR VALVE IN MANHOLE

MANHOLE NOTES:

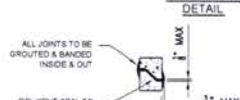
1. WHEN MH IS INSTALLED IN UNIMPROVED AREAS, THE TOP OF THE COVER SHALL BE 1'-0" MIN ABOVE ADJACENT FG.
2. PROVIDE 1, 2, 3, OR 4-FEET BARREL SECTIONS AS REQUIRED.
3. SET ALL BARREL SECTIONS & TAPERED SECTIONS IN PLASTIC GASKET, RAM-NEK OR APPROVED EQUAL. TYPICAL JOINT 1 3/4" (3/4"x2 3/4") RAM-NEK SEAL (TWO SEALS IN HIGH WATER TABLE AREAS).
4. MANHOLE BASE SHALL BE PRE-CAST AND PLACED PRIOR TO FUSING PIPE AT THESE LOCATIONS.
5. JOINT BETWEEN BASE AND BARREL TO BE SEALED WITH 1 3/4" (3/4"x2 3/4") RAM-NEK SEAL (TWO SEALS IN HIGH WATER TABLE AREAS) OR PLASTER 6" FILLET, 1:3 MORTAR.

COMBINATION AIR VALVE & APPURTENANCES NOTES:

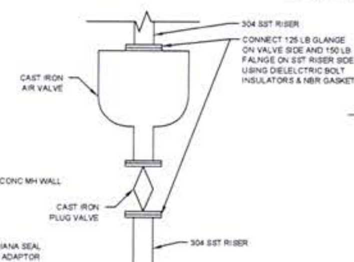
6. STAINLESS STEEL RISERS AND STEEL PIPE USED TO CONNECT BETWEEN MAINLINE AND COMBINATION AIR VALVE SHALL BE RATED FOR A MINIMUM OF 150 PSI.
7. PROVIDE THREADED END CONNECTION FOR 2" AND 3" SST PIPE AND VALVE SIZES.
8. PROVIDE FLANGED END CONNECTIONS FOR SST RISER AND VALVES 4" AND LARGER.
9. PROVIDE 3" SIMPSON TITEN HD SCREWS, 3" LONG, DIAMETER TO MATCH CLAMP.



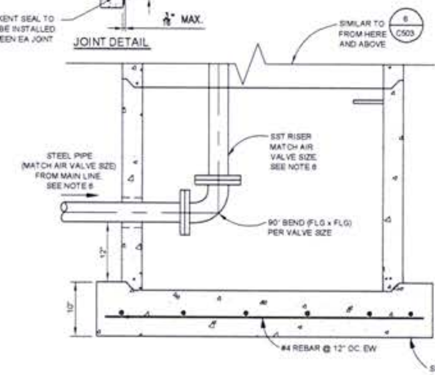
WATERSTOP DETAIL



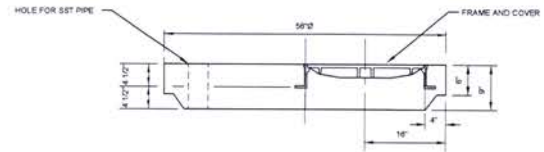
JOINT DETAIL

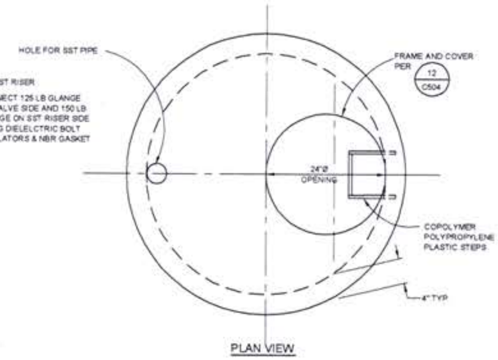


DISSIMILAR MATERIAL CONNECTION DETAIL

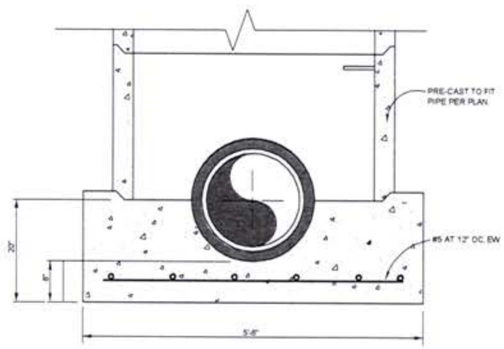


6 C503 COMBINATION AIR VALVE IN MANHOLE WHERE PIPELINE INSTALLED UNDER ROADWAY





9 C503 48" PRECAST FLAT TOP MANHOLE COVER - PLAN VIEW



A C503 PRE-CAST MANHOLE BASE

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Drafting Check PK | Design Check PK
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Date
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Client **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project **TECHITE PIPELINE REPLACEMENT PROJECT**
Title **MANHOLE & AIR VALVE DETAILS - 1 OF 2**
Contract No. 01055-11-012
Original Size Ansi D Drawing No: **C503**
Sht 33 of 35
Rev:

TABLE 1 SEED MIX FOR FOR REVEGETATION

Overall Spacing (feet off center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Individual Spacing (ft.)
N/A	50			**NATIVE SEED**				
		20	0.4	*Achillea millefolium*	yarrow	LB of P.L.S. 76 %	SEED	N/A
		20	0.4	*Anaphalis margaritacea*	pearly everlasting	LB of P.L.S. 76 %	SEED	N/A
		15	0.3	*Deschampsia caespitosa*	hairgrass	LB of P.L.S. 76 %	SEED	N/A
		15	0.3	*Festuca rubra*	red fescue	LB of P.L.S. 76 %	SEED	N/A
		17.5	0.4	*Danthonia californica*	California oatgrass	LB of P.L.S. 76 %	SEED	N/A
		12.5	0.3	*Festuca californica*	California fescue	LB of P.L.S. 76 %	SEED	N/A
		100	2.1	= total				

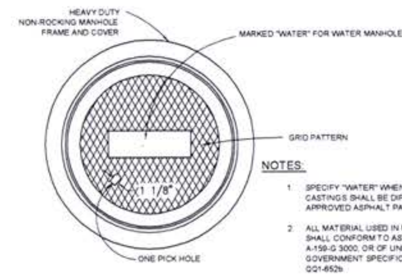
NOTE: THESE SPECIES AREA POTENTIAL SUBSTITUTES FOR TO EITHER REDUCE COST OR IF THERE IS A LACK OF AVAILABLE SEED FOR A GIVEN SPECIES: *ELYMUS GLAUCUS, FESTUCA MICROSTACHYS, AND BROMUS CARINATUS*

TABLE 1 PLANT MIX FOR FOR REVEGETATION ON NEW NAVY BASE ROAD STA 50+25 TO STA 51+00 (209 SQ. FT.)

Overall Spacing (feet off center)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Individual Spacing (ft.)
2	10890			**HERBACEOUS**				
		25	11	*Ambrosia chamissonis*	beach bur	4" plug	random	4
		25	11	*Armeria maritima ssp. californica*	sea pink	4" plug	random	4
		25	11	*Eriogonum latifolium*	beach buckwheat	4" plug	random	4
		25	11	*Fragaria chiloensis*	beach strawberry	4" plug	random	4
		100	44	Total				

TABLE 3: COMBINATION AIR VALVE ASSEMBLY IMPACTED AREAS

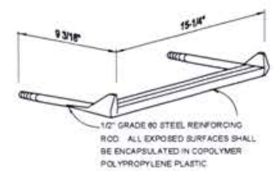
Transmission Main Station (20" PVC)	ARV Size	Install Fire Hydrant Adjacent to ARV	Temporary Area Disturbed (Sq. Ft.)	Temporary Area Distrubed (Acres)	Permanent Area Disturbed (Sq. Ft.)	Permanent Area Distrubed (Acres)	Type of Vegetation
1+08.2 & Station 1+00 to Station 2+50 Disturbed Naturalized Area by Pipeline installation, and 14.3 LF to connect to (E) mainline	8"	No	511.6	0.0117	50	0	Naturalized
4+38.7	4"	No	24.3	0.0006	17.1	0.0004	Naturalized
38+65.0	4"	Yes	32.7	0.0008	17.7	0.0004	Coastal Dune Mat
50+25.0	8"	Yes	31.9	0.0007	17.7	0.0004	Coastal Dune Mat
63+50.0	N/A	Yes	10.8	0.0002	0.6	0.0000	Coastal Dune Mat
82+62.8	3"	Yes	33.9	0.0008	17.7	0.0004	Coastal Dune Mat
103+28.0	3"	No	22.9	0.0005	17.1	0.0004	Naturalized
Station 103+28.0 to Station 103+87.4 & Station 104+02.5 to Station 105+83.0 Unpaved area south of Duprey Disturbed by pipeline installation	N/A	No	719.7	0.0165	0	0	Naturalized
Station 103+87.4 to Station 104+02.5	N/A	No	45.900000	0.0011	0	0	CA Blackberry
Bay Street Station (12" PVC)							
4+21.0 Connection to DG Fairhaven Power Co Disturbed by pipeline installation	N/A	No	40.0	0.0009	0	0	Naturalized
18+00	2"	No	58.9	0.0014	17.1	0.0004	Naturalized
Lindstrom Avenue Station (12" PVC)							
1+10.5	2"	No	0	0.0000	0	0	Paved area
9+37.8	2"	No	22.9	0.0	17.1	0.0004	Naturalized
16+28.0	2"	No	28.9	0.0007	17.1	0.0004	Naturalized
	Total	No	1,584.4	0.0364	189.20	0.0032	



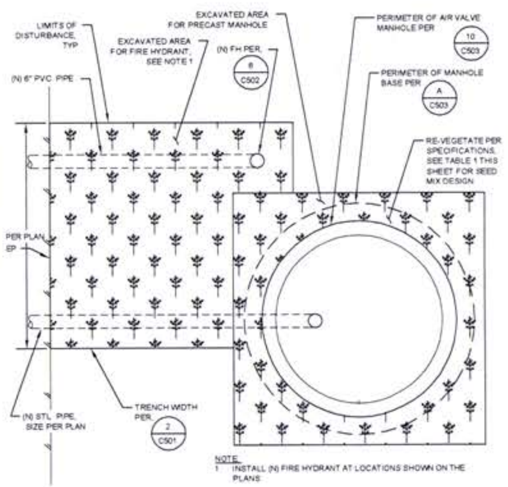
NOTES:

1. SPECIFY "WATER" WHEN ORDERING. ALL CASTINGS SHALL BE DIPPED IN APPROVED ASPHALT PAINT.
2. ALL MATERIAL USED IN MANUFACTURING SHALL CONFORM TO ASTM DESIGNATION A-159-G 3000, OR OF UNITED STATES GOVERNMENT SPECIFICATIONS QQ1-652b.
3. MINIMUM WEIGHT COMPONENTS: COVER - 130 POUNDS. FRAME - 135 POUNDS.

12 / C504 MANHOLE FRAME AND COVER



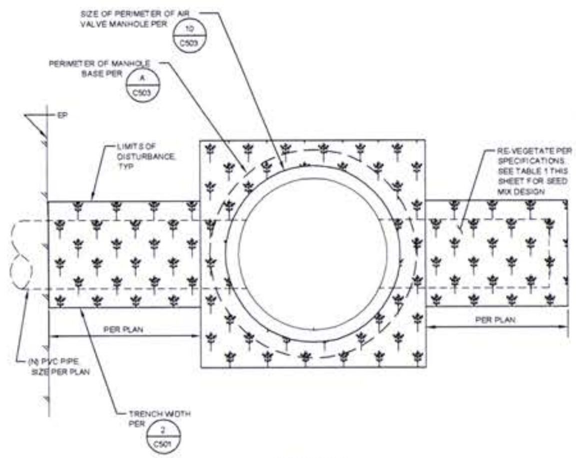
11 / C504 TYPICAL STEP DETAIL



NOTE:
1. INSTALL (N) FIRE HYDRANT AT LOCATIONS SHOWN ON THE PLANS.

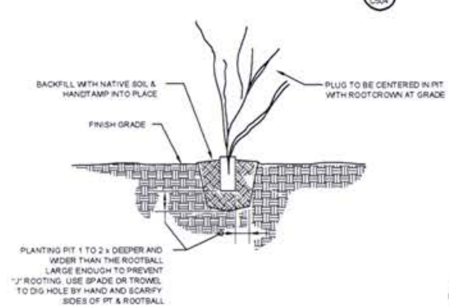
PLAN VIEW

13 / C504 REVEGETATION DETAIL AROUND ARV WHER PIPELINE INSTALLED UNDER ROADWAY



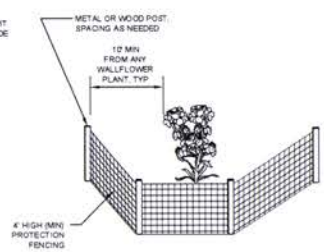
PLAN VIEW

14 / C504 REVEGETATION AROUND ARV



NOTES:
1. PLACE RANDOMLY TO MIMIC NATURAL PATTERN.
2. AVERAGE DENSITY TO BE 2 ON CENTER.
3. ROOTBALL TO BE THROUGHLY WATERED IMMEDIATELY AFTER PLANTING, AND KEPT MOIST AS REQUIRED TO ENSURE PLANT HEALTH DURING CONTSRUCTION AND MAINTENANCE PERIODS.

15 / C504 PLUG PLANTING
SCALE: NTS



16 / C504 TEMPORARY VEGETATION PROTECTION FENCING
SCALE: NTS

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Plot Date: 10 October 2013 - 2:44 PM | Plotted by: Yeash Tiles | Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-CAD\Sheets\01055110120504-C504.dwg

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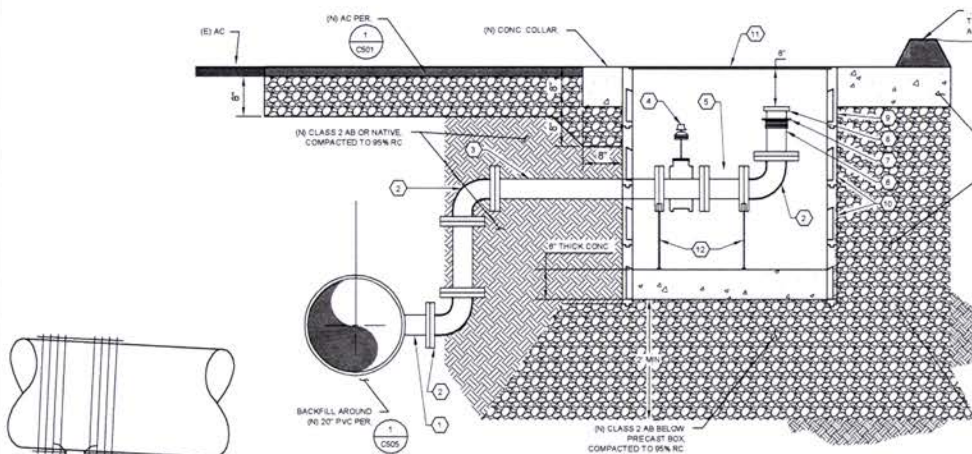
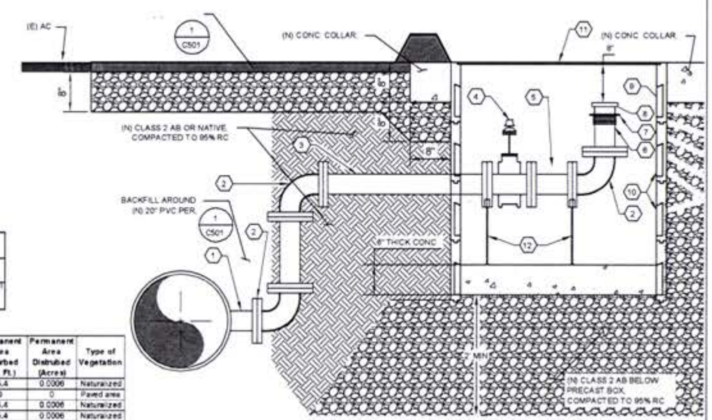
Drawn: SJD/YT	Designer: YT		
Drafting Check: PK	Design Check: PK		
Approved (Project Director)			
Date			
Scale: AS SHOWN	This Drawing shall not be used for Construction unless Signed and Sealed For Construction		

Client: **HUMBOLDT BAY MUNICIPAL WATER DISTRICT**
Project: **TECHITE PIPELINE REPLACEMENT PROJECT**
Title: **MANHOLE & AIR VALVE DETAILS - 2 OF 2 & ARV REVEGETATION PLAN DETAILS**
Contract No. 01055-11-012
Original Size: Ansi D | Drawing No: **C504** | Sht 34 of 35 | Rev:



ELEVATION VIEW STATION ON NEW NAVY BASE ROAD STA 59+64



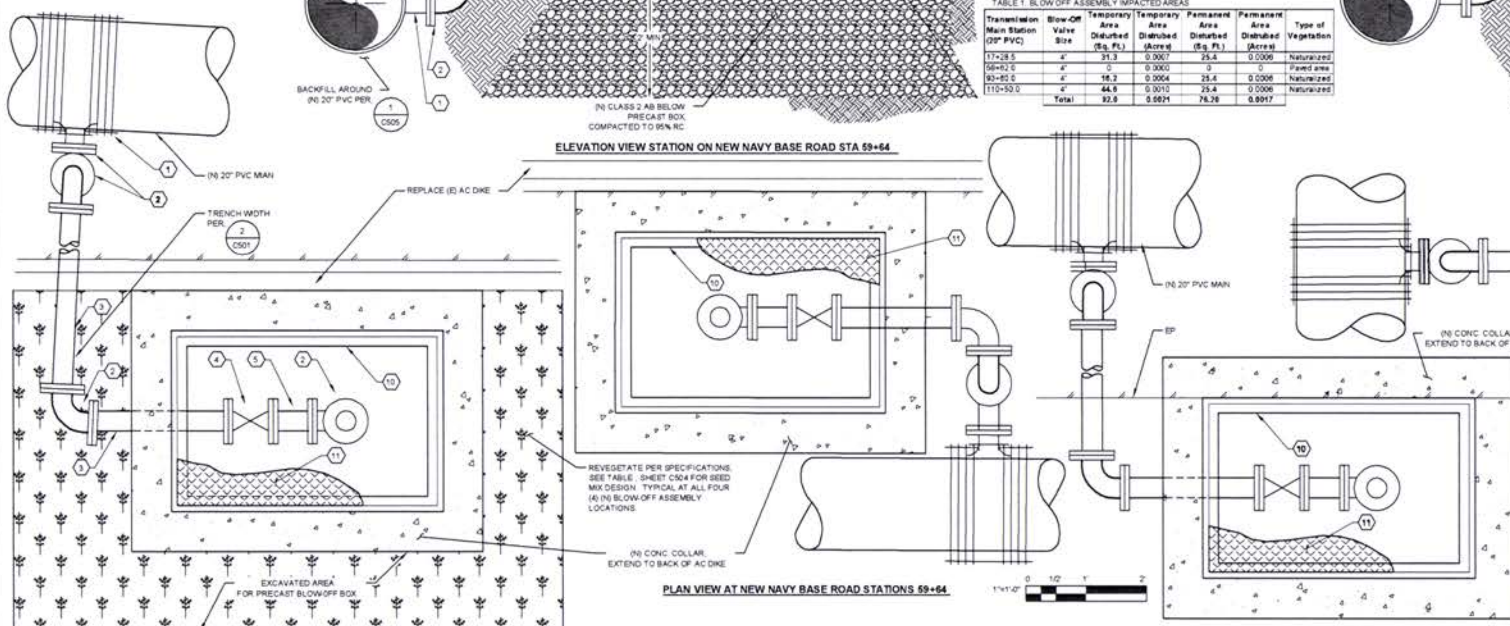
TYPICAL ELEVATION VIEW WHERE INSTALLED IN NON-PAVED AREAS

REVEGETATION NOTE:

SEE SHEET TABLE 2 ON SHEET C504 FOR SPECIES AND DENSITY REQUIRED FOR REVEGETATION IN THE AREA SHOWN ON SHEET C405, DETAIL G.

TABLE 1. BLOW OFF ASSEMBLY IMPACTED AREAS

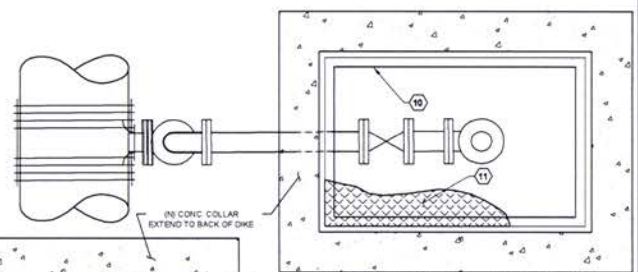
Transmission Main Station (20" PVC)	Blow-Off Valve Size	Temporary Area Disturbed (Sq. Ft.)	Temporary Area Distrubed (Acres)	Permanent Area Disturbed (Sq. Ft.)	Permanent Area Distrubed (Acres)	Type of Vegetation
17+28.5	4"	31.3	0.0007	25.4	0.0006	Naturalized
59+62.0	4"	0	0.0000	0	0	Paved area
93+60.0	4"	16.2	0.0004	25.4	0.0006	Naturalized
110+50.0	4"	44.6	0.0010	25.4	0.0006	Naturalized
	Total	92.8	0.0021	76.20	0.0017	



PLAN VIEW AT NEW NAVY BASE ROAD STATIONS 17+06

PLAN VIEW AT NEW NAVY BASE ROAD STATIONS 59+64

PLAN VIEW AT NEW NAVY BASE ROAD STATIONS 93+90



PLAN VIEW AT STATIONS 110+50 - NON PAVED AREA

KEYNOTES - DETAIL 1

1. (N) 20" x 4" STAINLESS STEEL TAPPING SLEEVE W/ FLANGED OUTLET
2. (N) DUCTILE IRON 4" Ø 90° BEND (FLG x FLG)
3. (N) 4" DI SPOOL, LENGTH PER PLAN (FLG x FLG)
4. (N) 4" PLUG VALVE (FLG x FLG)
5. (N) 4" Ø DI SPOOL 8" LONG
6. (N) 4" Ø DUCTILE IRON SPOOL 8" LONG (FLG x THD)
7. (N) 4" Ø MALE ADAPTOR x MALE NPT CAM LOCK FITTING, TYPE F
8. (N) 4" Ø CAP & GASKET FOR MALE CAM LOCK FITTING
9. (N) 1' HIGH PREACST CONC VALVE BOX EXTENSION OLDACSTLE PRECAST B3048 OR APPROVED EQUAL
10. (N) 1' HIGH PRECAST CONC VALVE BOX (30" x 48" CLEAR INSIDE). OLDCASTLE PRECAST B3048 OR APPROVED EQUAL
11. (N) STEEL HINGED PLATE COVER W/ DIAMOND CHECKER, OLDCASTLE PRECAST, B3048-53JH 3 PIECE H20 RATED STEEL COVER
12. (N) FLANGE SUPPORT, STANDOM MODEL S89 OR EQUAL

17 / C505 **BLOWOFF ASSEMBLY DETAILS**
SCALE: AS SHOWN

100% SUBMITTAL NOT FOR CONSTRUCTION

Drawn: YT	Designer: YT	Client: HUMBOLDT BAY MUNICIPAL WATER DISTRICT
Drafting Check: PK	Design Check: PK	Project: TECHITE PIPELINE REPLACEMENT PROJECT
Approved (Project Director)		Title: BLOW OFF ASSEMBLY DETAILS
Date		Contract No. 01055-11-012
Scale: AS NOTED	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	Original Size: Ansi D — Drawing No: C505 — Sht 35 of 35 — Rev:

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No. | Revision | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date

Plot Date: 18 October 2013 - 2:44 PM | Plotted by: Yoesh Tilee | Cad File No: G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\08-CAD\Sheets\01055110120505.dwg

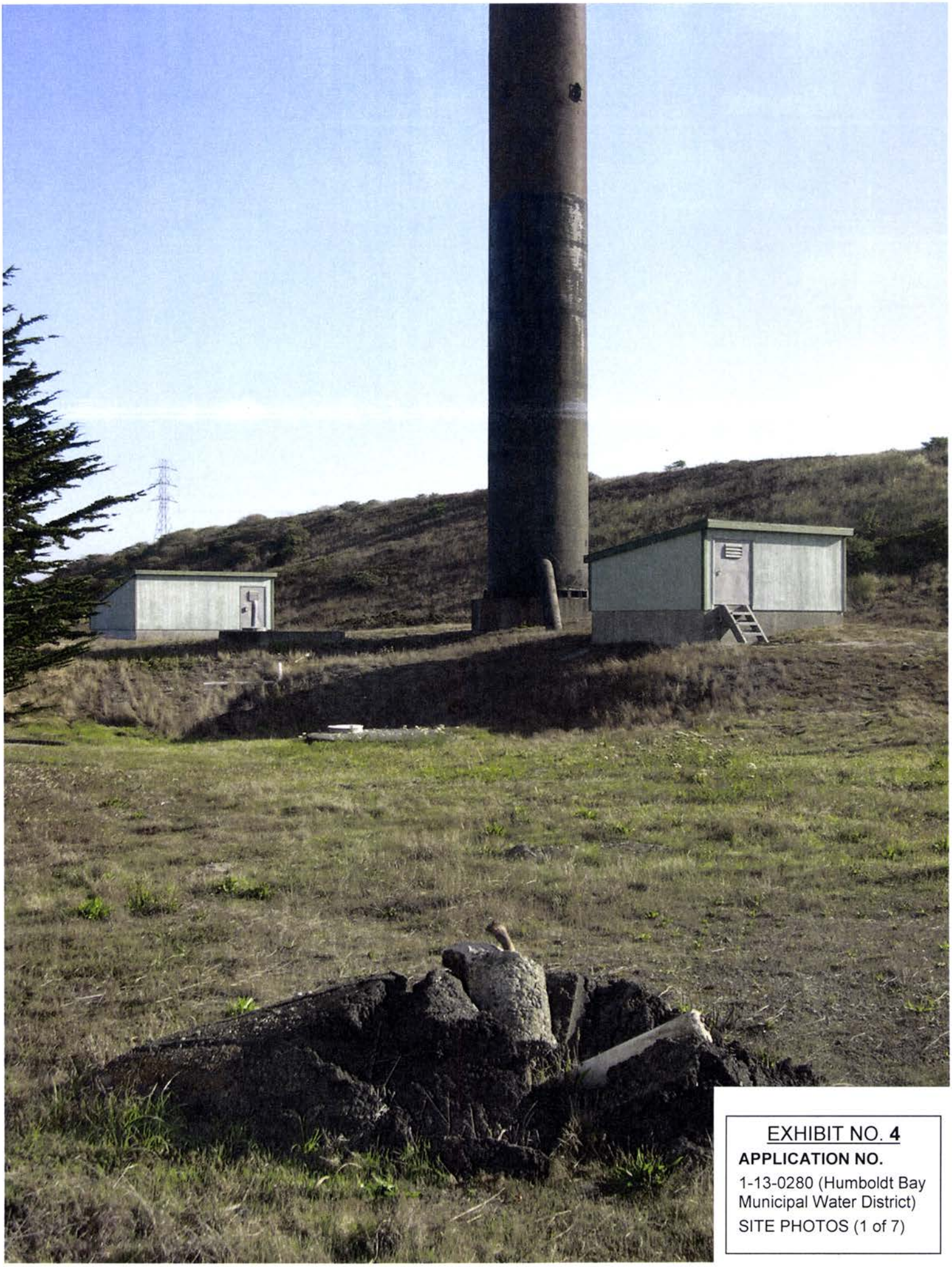

EXHIBIT NO. **4**

APPLICATION NO.

1-13-0280 (Humboldt Bay Municipal Water District)

SITE PHOTOS (1 of 7)


Lbg


4 of 7


5 of 7

6 of 7

797

November 1, 2013

GHD ref: 01055/11012/004
CCC ref: CDP App. 1-13-0280

Melissa Kraemer
Coastal Planner
California Coastal Commission
1385 Eighth Street, Suite 130
Arcata, CA 95521

Humboldt Bay Municipal Water District (HBMWD), Techite Pipeline Replacement Project, Subsequent Information Regarding the Proposed Installation of Pipeline Appurtenances on New Navy Base Road off of the Edge of the Existing Pavement

Dear Ms. Kraemer,

The following information is supplemental to the July 15th, 2013 and August 26th, 2013 letters to you from GHD on behalf of the Humboldt Bay Municipal Water District (HBMWD), for the Techite Pipeline Replacement Project Coastal Development Permit Application (CDP Application 1-13-0280). This information is being provided as discussed during the meeting on October 22, 2013 with yourself, Bob Merrill, Carol Rische, Stephanie Klein and myself. At this meeting it was discussed that GHD would provide the CCC staff with the Humboldt County Department of Public Works 1969 Construction Plans for New Navy Base Road and Lincoln Avenue, and provide our interpretation of how HBMWD's proposed pipeline appurtenances including Air Relief Valves (ARV), blow-off assemblies, and fire hydrants needed for the Techite Pipeline Replacement Project are located in respect to areas previously disturbed during the construction of New Navy Base Road and Lincoln Avenue in 1969. Subsequent to our detailed review of the County New Navy Base Road Construction Plans, coupled with the installation of additional soil borings locations as detailed in a supporting "HBMWD Techite Pipeline Replacement Soil Boring" Memo dated Nov. 1, 2013, Stephanie Klein, GHD, and minor adjustments to the locations of a proposed air relief valve location and a blow-off location, we believe that all proposed appurtenances are now located within "urbanized" areas along the alignment. As detailed in this letter, each proposed appurtenance that is not within the paved section of the road is now located is an area that is underlain by fill that was used in the construction of New Navy Base Road or Lincoln Avenue and do not impact any Environmentally Sensitive Habitat Areas (ESHAs).

This letter also serves to update you on some revisions to the locations for proposed fire hydrant installations along New Navy Base Road. At a meeting that was held on October 27, 2013 between Mr. Dale Unea, Samoa Peninsula Fire District Chief, Carol Rische, HBMWD General Manager, and Dale Davidson, HBMWD Superintendent, and myself, Mr. Unea requested that the proposed fire hydrants on New Navy Base Road be moved to different locations than those described in the letter to you dated August 26th, 2013. Tables 1 and 2 included in the August 26th letter are reproduced below and changes made per the Fire Department request are listed. We believe, and think that you will agree, that the new fire hydrant locations have even fewer potential impacts than the previous locations. The fire hydrant initially proposed at Station 38+61.5 on new Navy Base Road has been eliminated and another fire hydrant is proposed instead on Bay Street adjacent to the DG Fairhaven Power Company entrance gate. The proposed gate entrance location is urbanize and underlain by extensive fill (please see supporting "HBMWD Techite Pipeline Replacement Soil

Boring" Memo dated Nov. 1, 2013, Stephanie Klein, GHD) Both fire hydrants previously proposed at Stations 63+50 and 82+59.4 have been eliminated and a single fire hydrant is proposed instead at the intersection of New Navy Base Road and the Simpson Private Road. This proposed fire hydrant location is also underlain by extensive fill used in the construction of the intersection. Again, please refer to the supporting Nov. 1, 2013, "HBMWD Techite Pipeline Replacement Soil Boring" Memo.

Table 1: New Fire Hydrant Locations

Plan Sheet	Fire Hydrant Station Location (Listed in August 26 ,2013 Letter to the CCC)	Updated Fire Hydrant Location	Temporary Impacted Area (SQ. FT.)	Permanent Impacted Area (SQ. FT.)
C104	38+61.5	Bay Street Alignment Station 6+50	9.0	0.6
C105	50+21.5	No change	9.0	0.6
C107	63+50.0	One hydrant at the Intersection of Simpson Private Road and New Navy Base Road. Alignment Station 73+00	9.0	0.6
C109	82+59.4			
Totals			**27.0**	**1.8**

Table 2: Updated Table of Proposed Pipeline Appurtenances including Air Relief Valves and Fire Hydrants for the Techite Pipeline Replacement Project

Transmission Main Station (20" PVC)	ARV Size	Install Fire Hydrant Adjacent to ARV	Temporary Area Disturbed (square feet)	Temporary Area Disturbed (Acres)	Permanent Area Disturbed (square feet)	Permanent Area Disturbed (Acres)	Type of Vegetation
1+08.2 & Station 1+00 to Station 2+50 Disturbed Naturalized Area by Pipeline Installation, and 14.3 LF to connect to (E) mainline	8"	No	511.8	0.0117	50	0	Urbanized
4+38.7	4"	No	24.3	0.0006	17.1	0.0004	Urbanized
38+65.0	4"	No	24.3	0.0008	17.1	0.0004	Urbanized
50+25.0	8"	Yes	31.9	0.0007	17.7	0.0004	Urbanized
72+96.0	N/A[A]	Yes	9.0		0.6		Urbanized
82+62.8	3"	No	33.9	0.0008	17.7	0.0004	Urbanized
103+28.0	3"	No	22.9	0.0005	17.1	0.0004	Urbanized
Station 103+28.0 to Station 103+87.4 & Station 104+02.5 to Station 105+83.0 Unpaved area south of Duprey Disturbed by pipeline installation	N/A	No	719.7	0.0165	0	0	Urbanized
Station 103+87.4 to Station 104+02.5	N/A	No	45.9	0.0011	0	0	CA Blackberry
Bay Street Station (12" PVC)							
4+21.0 Connection to DG Fairhaven Power Co. Disturbed by pipeline installation	N/A	No	40.0	0.0009	0	0	Urbanized
6+22.6	N/A	Yes	45.0		0.6		Urbanized
18+00.0	2"	No	58.9	0.0014	17.1	0.0004	Urbanized
Lindstrom Avenue Station (12" PVC)							
1+10.5	2"	No	0	0.0000	0	0	Paved area
9+37.8	2"	No	22.9	0.0	17.1	0.0004	Urbanized
16+28.0	2"	No	28.9	0.0007	17.1	0.0004	Urbanized
	Total	**No**	**1,619.3**	**0.0369**	**189.20**	**0.0036**	

[A] Air Relief Valves are not proposed at locations where indicated in this Table with Not Applicable (N/A). At these locations only fire hydrants are proposed.

No changes have been made to the proposed locations of the Blow-Off Assemblies since the July 15th letter was sent to you, except for a single minor adjustment that was made to one of the Blow-off Assembly locations to ensure it was located in an urbanized area. For consistency, Table 2 provided to you in the letter dated July 15th, 2013 is provided below as Table 3. Following the survey by Stephanie Klein, GHD's Ecologist, it was determined that the location of the Blow-off off of the intersection of Lincoln Avenue and

New Navy Base Road should be adjusted slightly to ensure it is installed completely within an urbanized habitat as defined in this instance as an area that is completely underlain by fill used in the construction of Lincoln Avenue.

Table 3: Proposed Blow-Off Assembly Locations for the Techite Pipeline Replacement Project

Transmission Main Station (20" PVC)	Blow-Off Valve Size	Temporary Area Disturbed (Sq. Ft.)	Temporary Area Disturbed (Acres)	Permanent Area Disturbed (Sq. Ft.)	Permanent Area Disturbed (Acres)	Type of Vegetation
17+28.5	4"	31.3	0.0007	25.4	0.0006	Urbanized
59+62.0	4"	0	0	0	0	Paved area
93+92.0	4"	16.2	0.0004	25.4	0.0006	Urbanized
110+50.0	4"	44.6	0.0010	25.4	0.0006	Urbanized
	Total	**92.0**	**0.0021**	**76.20**	**0.0017**	

An updated set of Plans for the Techite Pipeline Replacement Project is attached to this memorandum. As described below and detailed in the findings from the field investigation as detailed in the Soil Boring Memo, GHD has established that all pipeline appurtenances will be installed in previously disturbed areas.

Attached to this letter are the 1969 Construction Plans of New Navy Base Road, Lincoln Avenue and Bay Street that GHD obtained from the Humboldt County Department of Public Works. Only Plan and Profile Sheets, Typical Road Sections and Structural Details from this set of Plans that correspond to the location of the proposed pipeline and the locations of the pipeline appurtenances for the Techite Pipeline Replacement Project are attached to this letter and include:

- Sheet 1 of 39 – Plan Set Cover Sheet -"Humboldt County Highway Federal Aid Secondary Project No. S 967(5) on F.A.S. Route 967 between 1.5 miles north of Samoa and 3.7 miles south of Samoa"
- Sheet 2 of 39 – Lincoln Avenue - "E1" Line Plan and Profile Sheet
- Sheets 12, 13, 14, 15, 16 and 17 - New Navy Base Road – Plan and Profile Sheets (Station 445+00 to Station 555+00)
- Sheet 18 of 39 – New Navy Base Road and Lincoln Avenue Intersection Plan and Profile Sheet.
- Sheet 22 and 23 of 39 – Bay Street – "PU" Line Plan and Profile Sheets
- Sheet 25 of 39 – Lincoln Avenue - "E1" Line Plan and Profile Sheet
- Sheet 27 of 39 – Rigid Frame Effluent Line – Structural Sheet

Table 4 below provides a list of proposed HBMWD's pipeline appurtenances located outside of the paved section of the road and were marked by GHD on the 1969 Plans.

Table 4: HBMWD's Appurtenances Marked on Humboldt County 1969 New Navy Base Road Plans.

Type of Appurtenance	Corresponding Sheet Number on 1969 Plans	Corresponding Sheet Number on HBMWD's Techite Pipeline Replacement Project	Station Reference to Techite Pipeline Replacement Project Plans
Blow-Off Assembly	13	C102	17+28.5
4" ARV Assembly	14	C104	38+65.0
8" ARV and Fire Hydrant	15	C105	50+25.0
Fire Hydrant	16	C107	72+96.0
3" ARV	17	C109	82+62.8
Blow-Off-Assembly	18	C110	93+92.0

As illustrated on these Plan and Profile Sheets, the limits of disturbance for constructing New Navy Base Road are delineated with a dashed line on the Plans. The proposed appurtenances for the Techite Pipeline Replacement Project, listed in Table 4 above, are all located off of the paved area of New Navy Base Road; however, are all within the pervious limits of disturbance that resulted from the construction of New Navy Base Road as detailed on the 1969 Plans.

Sheet 2 of the 1969 Plans shows the Typical Construction Cross Sections for New Navy Base Road, Lincoln Avenue and Bay Street. The detail on the upper left of Sheet 2 shows the typical road cross sections within the limits of the Techite Pipeline Replacement Project. This detail is reproduced as Figure 1 below. The Typical Cross Sections shows the installation of an eight foot wide paved shoulder to the face of the asphalt concrete curb, and an additional four feet wide section, beyond the face of the asphalt concrete curb, that was reconstructed using engineered fill. The limits of grading or disturbance, represented by the dashed line on the 1969 Plans, for the construction of New Navy Base Road extend further east than the four foot wide shoulder section, and vary throughout the road alignment depending on the amount of cut and fill that was needed to achieve finished road grades. A typical slope ratio of 4 horizontal to 1 vertical was used to fill sections, and a 2 horizontal to 1 vertical was used on cut section. Also shown on the Typical Section, the constructed section beyond the fog line, including the eight foot wide paved shoulder and the four foot wide unpaved section, was treated with penetration treatment, which means that the subgrade was excavated and replaced with imported subgrade. The presence of this imported fill material extending a minimum of four feet beyond the paved section was confirmed during the soil borings installed adjacent to New Navy Base Road.

All of the proposed fire hydrant and air relief valve locations along New Navy Base are located well within the previously disturbed areas detailed on the 1969 Plans except in two locations. The previous limits of disturbance shown on Sheet 14 of the 1969 Plans at the location of the proposed ARV (Techite station 38+65) appear to extend approximately four feet beyond the paved section of the road shoulder, and on Sheet 17 at the location of the proposed ARV (Techite station 82+62.8) the limits of disturbance also appear to extend approximately four feet beyond the paved section of the road shoulder. However, soil borings

collected by GHD at these two proposed locations indicate that engineered fill material was placed at these two locations, out to the proposed ARV locations. The samples collected at Stations 38+65 are labeled F1, F2, and samples collected at Station 82+62.8 are labeled B1, B2 in Table 1 of the "HBMWD Techite Pipeline Replacement Soil Borings" Memorandum accompanying this letter.

The typical section on Sheet 2 (Figure 1 below) that applies to where the Blow-off assembly on Lincoln Avenue is proposed is labeled "Approach Road "PU, "E1", "B2" and "GP" Lines". "E1" represents the Lincoln Avenue alignment. The typical section of Lincoln Avenue shows a four foot wide shoulder and a foot wide section of unpaved shoulder that was also penetration treated. As mentioned above, the blow-off location off of the intersection of Lincoln Avenue and New Navy Base Road was adjusted slightly to ensure that it will be installed within this "penetration treated" or fill area, and the presence of the fill was confirmed during GHD's soil boring installations.

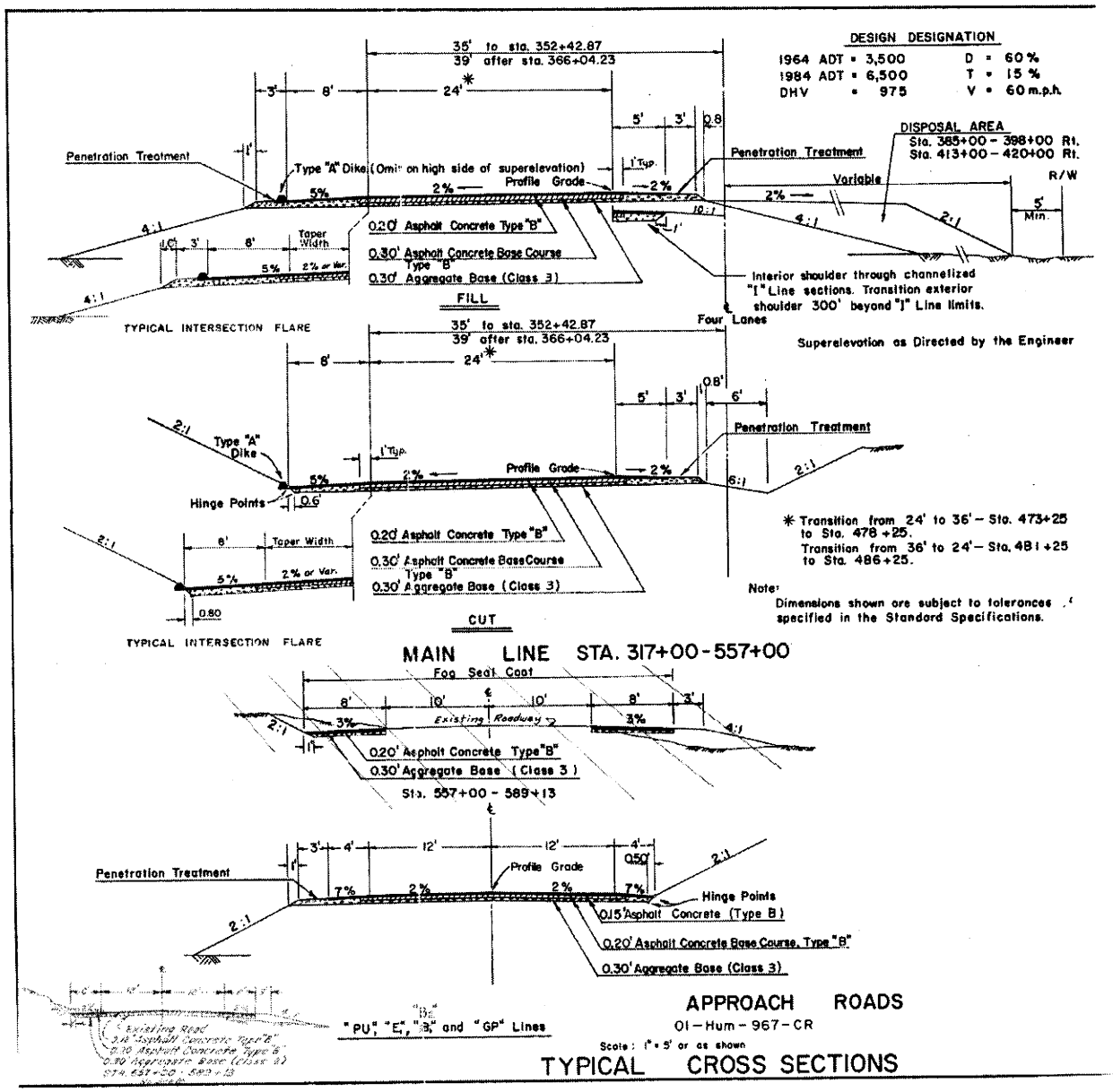

Figure 1: Typical Cross Section Sheet (Humboldt County Department of Public Works, Federal Aid Secondary Project No. S -967(4), approved January 24, 1966.

In summary, as confirmed on the 1969 construction plans and supplemented by GHD's finding from the most recent field investigation, all proposed appurtenances for the Techite Pipeline Replacement Project are located within areas previously disturbed by the construction of New Navy Base Road in 1969. All of these areas were disturbed during the cut and fill operations during the road construction, and had engineered fill placed under the proposed area of extent of disturbance for the construction of the appurtenances. A

separate summary of the field investigation conducted by GHD is provided to you with this memorandum to further support these findings.

Should you have any questions or require any additional information please do not hesitate to contact me at the number listed below.

Regards,

Pat Kapsari, P.E.
Project Manager
707-443-8326

cc:

Carol Rische, General Manager, HBMWD
Dale Davidson, HBMWD
Techite Project File (CDP Subfile)

Attachments: Memorandum – HBMWD Techite Pipeline Replacement Project Soil Borings, dated November 1, 2013
HBMWD Techite Pipeline Replacement Project, Project Plans dated November 2013.
Humboldt County Department of public Works, Humboldt County Highway, Federal Aid Secondary Project No. S 967(5), dated June 23, 1969.

Memorandum

1 November 2013

To	Carol Rische		
Copy to	California Coastal Commission		
From	Stephanie Klein	Tel	707.443.8326
Subject	HBMWD Techite Pipeline Replacement Soil Borings	Job no.	8490017

Summary

On October 16 and 21, 2013 soil boring samples were taken along the Humboldt Bay Municipal Water District (HBMWD) proposed Techite pipeline replacement alignment in areas where pipeline infrastructure will encroach beyond the edge of pavement. This memo presents the soil boring results per the request of the California Coastal Commission (CCC) in order to determine the substrate composition where air release valves, blow off valves and fire hydrants are proposed to be installed. Previous reports provided by GHD describing the sites biological resources reveals a majority of the habitat adjacent to New Navy Base road is coastal dune mat habitat; however, the area directly next to the road shoulder contains road prism fill material, an artificial substrate. In an effort to avoid Environmentally Sensitive Habitat Area (ESHA), the pipeline infrastructure that extends outside the paved area is proposed to be installed in this "urbanized" (unnatural substrate), non-ESHA habitat.

Location

The soil borings were taken along the proposed project alignment occurring within and to the north of the unincorporated town of Fairhaven, located on the Samoa Peninsula in Humboldt County, California (Figure 1). The areas proposed for the new alignment begins at the HBMWD Terminal Reservoir and ends at the start of the HBMWD Humboldt Bay crossing near Fairhaven, CA. The proposed pipeline alignment occurs within disturbed roadways, including New Navy Base Road, Bay Street, Lincoln Ave, and Duprey Streets in Fairhaven. This memo focuses on the proposed project and study areas along New Navy Base Road (and one location on Lincoln Avenue) where air release valves, blow off valves, and/or fire hydrants are proposed in close proximity to native dune habitat, outside the paved road section. All of the soil samples were taken within five feet of the edge of pavement.

Results

A total of 12 soil samples were taken at seven locations along the proposed alignment (Figure 1, Attachment A) and their location recorded, using a Trimble Juno 5 with Trimble Pro6H Receiver. Data was post-processed in Trimble Pathfinder Office v5.3 software using differential correction from two base stations, resulting in an accuracy of between five and 15 centimeters. In general, the depth of soil samples ranged from six inches to 12" below ground surface (BGS). Borings were dug using a sharp shooter and spade. Data on soil color, texture, structure, vegetation and comments was collected (see Attachment B).

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Soil texture was recorded as either loamy sand or sand. Soil colors where documented as 10 YR 4/2, 10 YR 4/3, 2.5 Y 4/2, 2.5 Y 4/1 and 2.5 Y 3/2. Four of the sample locations (A2, B1, E3 & E4 in Table 1) had a non-natural restrictive layer at eight inches, and one at six inches, as a result of very coarse cobble associated with the New Navy Base Road fill prism (Photograph 1). The majority of soil samples contained ~10%- 40% medium to very coarse sub-angular/sub-rounded size rock fragments also determined to be associated with engineered fill material from the road prism (Photographs 2 and 3). Some locations had medium size sub-angular and sub-rounded asphalt fragments on the soil surface (Photograph 4).

Photograph 1 very course fragments in soil pit

Photograph 2 Lincoln Ave. north of Willow patch

Photograph 3 coarse fragments in soil pit sample

Photograph 4 medium fragments on surface from asphalt

All but one sample location was dominated by annual grasses or bare sand. Three soil sample locations, two on New Navy Base Road (E1 and E2), and the most western location on Lincoln Avenue (A1), revealed a sandy substrate with no visible inclusions of engineered fill. While a sandy substrate was observed in two of four pits at soil sample location E, our interpretation of the county plans from 1969, suggests that this area was previously disturbed based on the presence of an adjacent outfall. As a result of county plans and soils samples, the proposed infrastructure will be placed in the location where soil samples reveal an urbanized substrate. Similarly, for the proposed infrastructure at soil sample location A, sample A1 revealed a native

sandy substrate; while sample A2 revealed engineered fill material. As a result, the infrastructure is proposed at the location where urbanized substrate was observed.

Additionally, the original design sighted four fire hydrant locations, soil sample location B, C, E, and F; the current design proposes three fire hydrants. The design has been updated to include one fire hydrant at the gate of DG Fairhaven Power on Bay Street (Photograph 5), and one at the intersection of New Navy Base Road and Simpson Private Drive (Photograph 6), and one remains at soil sample location E. Additional information pertaining to the sighting of fire hydrants can be found in an subsequent letter to the CCC dated 11.1.13. No additional soil sample data was collected at the newly proposed fire hydrant locations based on the evidence of urbanized habitat. A sharp shooter was used however, to verify evidence of engineered fill material in the substrate (Photograph 7). A summary of soil sample results is found below in Table 1.

Photograph 5 Bay Street proposed fire hydrant location in urbanized habitat

Photograph 6 and 7 Simpson Private Road and New Navy Base Road in urbanized habitat

Table 1 Summary of Soil Sample Results at Proposed ARV and Blow Off Valve Locations

Air Relase Valve Locations					
Alignment Station #	**Soil Sample ID**	**Install Fire Hydrant Adjacent to ARV**	**Soil Structure**	**Description/ Remarks**	**Substrate**
38+65.0	F1	Fire Hydrant removed from design	sand	matrix contained medium gravelly size rock fragments of engineered fill material	Urbanized
	F2		sand	matrix contained cobbley size engineered fil observed at 3" BGS	Urbanized
50+25.0	E1	Yes	sand	coarse and very course on surrface, no engineered fill in matrix; adjacent to urbanized outfall	Urbanized (reference CCC 10.24.13 letter)
	E2	No	sand	native dune species on surface, no engineered fill in matrix; adjacent to urbanized outfall	Urbanized (reference CCC 10.24.13 letter)
	E3	No	sand	surface medium to course gravelly size fragments on surface; restrictive engineered fill layer with ~20% course rock fragmentsat 8" BGS	Urbanized
	E4	No	sand	no data taken, restrictive engineered fill layer ~ 8" BGS	Urbanized
63+50.0	C	N/A	Removed from design		NA
82+62.8	B1	Fire Hydrant removed from design	Sand	restrictive engineered fill layer with ~10% course gravelly size rock fragmentsat 8" BGS	Urbanized
82+62.9	B2		Sand	matrix contained ~25% cobbaly size rock fragments	Urbanized
Blow Off Valve Locations					
17+28.5	G	No	Sand	course gravelly fill material mixed with innocuous wood chips artifacts	Urbanized
59+62.0	D	No	no data taken		Paved area
93+60.0	A1	No	sand	non-native annual grass	Native Sand
93+92.0	A2	No	sand	restrictive engineered fill layer with ~15% course gravelly size rock fragments at 8" BGS	Urbanized
Notes:					
1. All soil pits were dry					
2. rock fragments were generally sub-angular or sub-rounded					

Conclusion

On October 16 and 21, 2013 soil samples were taken along New Navy Base Road and Lincoln Avenue in areas associated with the proposed Techite pipeline replacement project. The soil samples yielded evidence of engineered fill material associated with the fill prism of New Navy Base Road. Fill material (2 mm to more than 10 mm diameter size sub rounded/sub angular rock fragments) was discernible on soil surface, within three inches BGS, and/or at six to eight inches BGS where a restrictive layer of engineered fill was present.

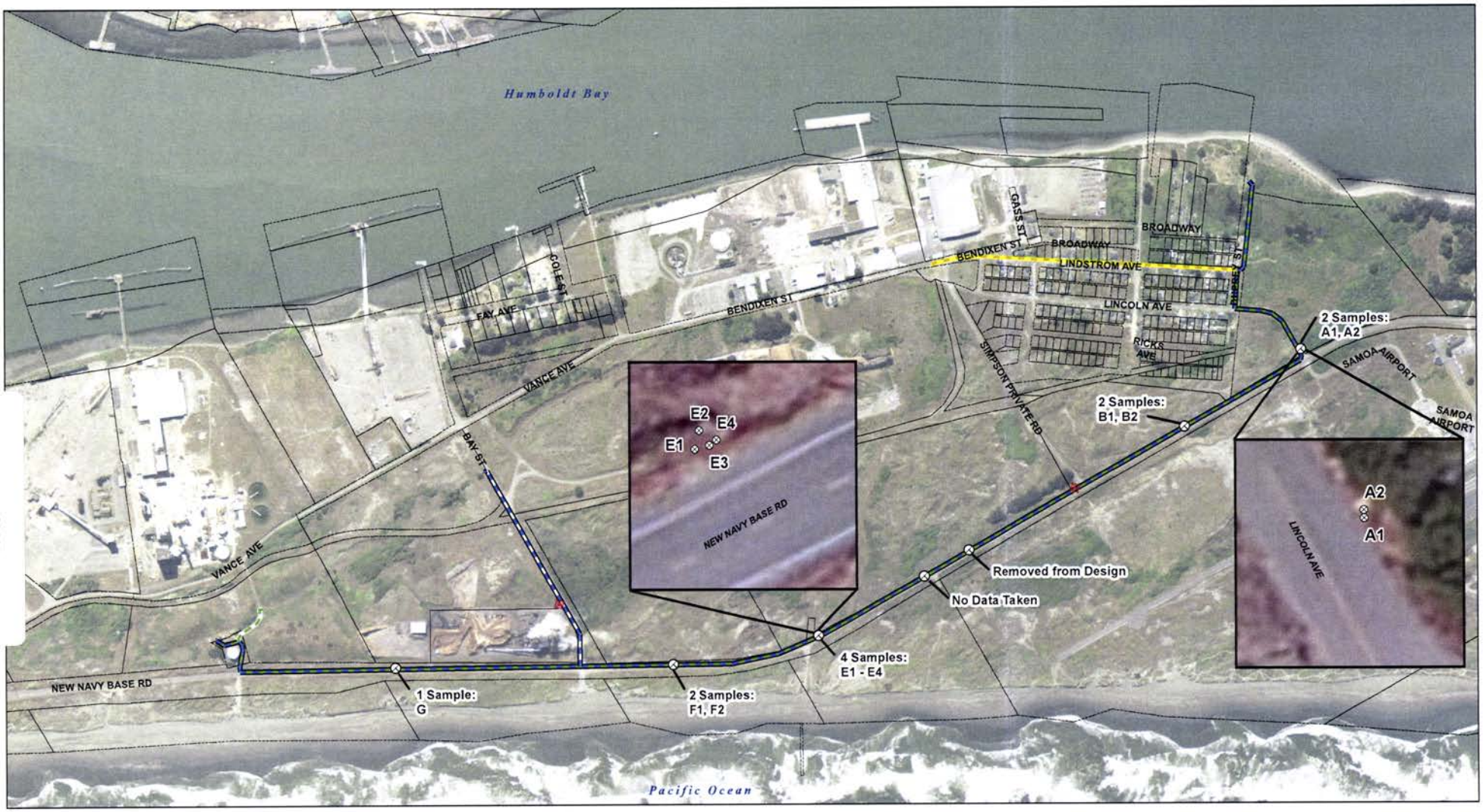
New locations were evaluated in the approximate vicinity for the two locations (soil sample A and E) where the soil borings revealed a sandy substrate without inclusions of artificial engineered fill material. The soil borings in the new locations revealed approximately 10% artificial engineered fill material and thus, will not adversely impact ESHA.

It is our belief, based on the physical composition of the substrate, the air relief valves, blow off valves, and fire hydrants have been proposed in urbanized areas containing artificial engineered fill material associated with past disturbance. As a result, all infrastructure associated with the pipeline will be installed in the most appropriate areas and will not adversely impact environmentally sensitive habitat.

Regards

Stephanie Klein
Environmental Scientist

Attachment A- Figure 1
Attachment B- Data Sheets



0 300 600 900 1,200
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

Soil Boring Location
Fire Hydrant
Parcels
Vance Ave. Alignment
Bay St. Alignment
Transmission Main Alignment
Lindstrom Ave. Alignment

Humboldt Bay Municipal Water District.
Techite Pipeline Replacement

Job Number 8490017
Revision A
Date 31 Oct 2013

Soil Boring Locations

Figure 1

G:\01055 HBMWD\01055-11-012 TechitePipelineReplacement\06-GIS\Maps\FiguresF1_SoilBorings.mxd

Data source: USDA NAIP Imagery, 2012. ESRI World Imagery, 2013. Humboldt County GIS, Parcels, 2013. GHD Inc., Soil Boring and Fire Hydrant Locations, 2013. Created by amahowe.

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FIELD SOIL LOG

GHD

Project Name: Techite	Project No.:
Date Started: 10/21/13	
Date Completed: 10/21/13	
Logged By: SL	Total Depth: 8"-12"

SOIL DESCRIPTION				Depth	Comment
DESCRIPTION & REMARKS	COLOR	MOIST.	STRUCTURE		
A 1) Lincoln Ave near willows					
O Horizon		Dry		0-1"	lots of roots
Lincoln Ave — lots of annual grasses [illegible]	7.5yr 3/1	Dry	Loamy Sand	1-1.5"	fine w/roots
	2.5y 4/2	Dry	Sand	1.5"-12+"	very fine
A 2) 1.6" Closer to Asphalt					
Lincoln Ave — O Horizon				0-0.5"	lots of roots OGM
Confining layer @ ~8" BGS un[illegible] fill	10yr 4/2	Dry	Sand w/gravel	0.5"-8"	fill present (15% course fragments)
B #1 New Nova Bose Rd. Closer to Pavement					
fill gravel present - 6" deep nature restrictive layer on Surface	10yr 4/2	Dry	Sand w/course gravel	0-6" Blocky fragments - 10%	fill present
B #2 95% annual grasses 5% Buckwheat-eriogonum	2.5y 4/3	Dry	Sand w/ gravel	0-12" Cobble fill present	(25%)
C #1 near asphalt spill (co)				0-0.5" O Horizon w/ course fragments.	
40% course fragments + medium	2.5y 4/1	Dry	Loamy Sand	0.5-1"	fill present
40% course fragments	2.5Y/2	Dry	Sandy Loam	1-4"	
50% very course gravel fill	10yr 4/3	Dry	Loam	4"-12"	

LNBR - [illegible]

FIELD SOIL LOG

Project Name:	Project No.:
Date Started:	
Date Completed:	
Logged By:	Total Depth:

SOIL DESCRIPTION				Depth	Comment
DESCRIPTION & REMARKS	COLOR	MOIST.	STRUCTURE		
#1 D N.N.BR. Ammophila Care Dodata Pavement/Curb					
E #1 near drainage w/ artimesia Course & very course Cobble fragments on surface,	10yr 4/2	Dry	Sand	0.5" O Horizon; 0.5-12"	very fine
#2 Artemesia present	10yr 4/2	Dry	Sand	0.5" O; 0.5-12"	very fine.
#3 new option close to pavement/Asphalt Surface Coated w/ medium to course fragments. Restrictive layer @ 8" Soil [illegible].	10yr 4/2	Dry	Sand w/ course fragments	0-8"	20% course fragments
G. #1 gravel fill & woodchips w/ annual grasses on surface	10yr 4/2	Dry	Sand w/ course-med. frag. gravel	0-0.5" wood chip fragments; 0.5-12" woodchips	fill present.
artifacts present					

FIELD SOIL LOG

Project Name: Tarble	Project No.:
Date Started: 10/17/13	
Date Completed: 10/17/13	
Logged By: Sx	Total Depth: 12"

SOIL DESCRIPTION				Depth	Comment
DESCRIPTION & REMARKS Texture	COLOR	MOIST.	STRUCTURE		
F.					
#1) Med Size Coarse fragments from ashfall ~15%	7.5YR 4/1	Dry	Sand Med Grain	0-1"	organics present
Sand	2.5Y 4/1	Dry	Sand very fine	1"-6"	med. size fragments
	2.5Y 3/2	Dry	Sand very fine	6"-12"	med size fragments
#2) O Horizon Root depth 3"		Dry	Sand	0-0.5"	organics
Sand w/ rounded fill Cobbles 3"	2.5Y 4/1		very fine	0.5"-3"	Roots frequent
Sand	2.5Y 4/1	Dry	Sand very fine	3"-12"	

Rounded, Sub rounded - Sub-angular