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		REV 0	DATE: 01/13
CATEGORY SITE			
SUBJECT GUIDE FOR TRANSMISSION ENCROACHMENT			

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Attachments

1. General

As a community owned electric utility, the Sacramento Municipal Utility District (SMUD) is committed to working in close collaboration with its customers and jurisdictions. This guide is designed to assist developers and engineers through the process of developing property within or directly adjacent to SMUD's existing electric transmission easements containing transmission facilities. SMUD believes that early planning and close collaboration will result in the best possible outcomes for projects.

SMUD owns rights-of-way easements along the length of their transmission lines (width varies by transmission line). SMUD's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission line.

Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with SMUD's use of its easement. To avoid potential conflicts, it is SMUD's policy to review all proposed uses within the transmission line easement. SMUD considers safety of the public, safety of our employees, restrictions covered in the easement, SMUD's maintenance requirements, protection of the transmission line structures and road or street crossings during the review process.

This guide is being furnished as an aid to streamline SMUD's plan review process, minimize potential negative impacts to SMUD's transmission facilities and easements, and increase public safety around transmission lines. Some aspects of SMUD's easements are too elaborate to be included in these guidelines. Since conditions and requirements may vary between corridors, these guidelines may be supplemented with additional requirements for a specific area, as SMUD deems necessary.

Developers and engineers should bear in mind that compliance with the requirements of the guide does not mean an automatic acceptance of your project by SMUD. SMUD's approval to allow grading or encroachments within SMUD's transmission easements or fee properties will be provided through an "Agreement" depending on the type of encroachments and analysis performed by SMUD engineers. All encroachment applications will be evaluated on an individual basis.

2. Glossary of Terms

Easement – A limited right to make use of a property owned by another.

Electrical Transmission Line – A system of conductors, structures and hardware suitable for the transfer of electric power between two or more terminals and operated at voltages greater than 115 kilo-volts.

Encroachment – Any improvements or objects that are located within SMUD's transmission easements or rights-of-way but are not a part of the transmission system.

Passive Recreational Parks - refers to a mix of uses in a neighborhood park, undeveloped land or minimally improved lands which includes; landscaped area, natural

area, ornamental garden, non-landscaped green space, stairway, uncovered picnic area or trail without recreational staffing.

Rights of Way – A lawful route that consists of a narrow length of land used for the route of a railroad, electric power line or public road.

3. Process and Approval

All encroachment requests for SMUD owned transmission line easements are handled through SMUD's Real Estate Services Department. The process for obtaining consent is as follows;

- Submit your completed Transmission Line Right of Way Application and Questionnaire along with plans and any other relevant information to the Real Estate Services office at Property_Admin@smud.org or mailed to SMUD Real Estate Services, 6201 S Street, MS B-304, Sacramento, CA 95817-1899.
- We will review the application for completeness and determine whether a consent can be granted.
- We will route the application to the appropriate SMUD units for review, comment and approval or denial.
- Once the project is approved by the SMUD asset owner, Real Estate Services will prepare and send the Consent to Common Use Agreement to you for signature.
- Once the agreement is signed by the applicant and returned to SMUD it is reviewed and signed by the Supervisor of Real Estate and recorded.
- Once executed by SMUD, a copy of the agreement and Work Permit will be sent to you or available for pick-up at our office.

It is important to remember that the approval process length can vary in time frame from a couple of weeks to several months and this length is dependent on several factors such as; completeness of application, completeness of plans, accuracy of plans, project scale, project complexity, extents of grading, extents of fill, impact to SMUD's existing rights, etc...

4. Development With-In Transmission Corridors

Development within or adjacent to transmission corridors require a case-by-case review.

All projects require SMUD approval for conductor clearances. Customers are responsible for complying with all Occupational Safety and Health Administration (OSHA), California Public Utilities Commission (CPUC) General Order 95 and National Electric Safety Code (NESC) minimum clearances and safety codes within and outside SMUD rights of way.

SMUD transmission rights of way may be utilized (with the proper SMUD authorization letter/agreement) for the following secondary uses:

- General parking of operational vehicles not exceeding 15’ in height.
- Driveways
- Passive recreational parks
- Open space/wildlife corridors
- Bike, walking and hiking trails within existing easements; **but not within SMUD fee owned properties**
- Free standing signs not exceeding 15’ in height

Written approval from SMUD’s Real Estate department for all projects and for changes to SMUD’s rights of way shall be obtained prior to the commencement of any activity.

Certain improvements, for safety and liability reasons, are typically not allowed within transmission corridors. These include, but not limited to the following:

- Buildings or structures
- Covered parking
- Excavation, elevation or grade changes
- Light Standards over 15’ tall
- Parallel Utilities
- Playground Equipment
- Stockpiling of materials
- Storage of combustibles
- Swimming pools, spas, gazebos, etc…
- Tall tree species (over 15’ at maturity)
- Trash enclosures
- Water Detention and/or Retention Basins

5. Trails and Parks

SMUD considers pedestrian trails, bicycle trails, equestrian trails, and recreational parks and sports fields to be acceptable secondary uses within its transmission easements provided that these improvements are designed and constructed so as not to impact SMUD's ability to enjoy its full rights within its easement. Designers and engineers should consider the following items when designing for these type of improvements;

a. The flying of kites within transmission easements is always prohibited for obvious reasons.

b. SMUD's easement boundaries shall be identified on all affected project drawings when submitted to SMUD for review.

c. Show SMUD's transmission lines, easement lines and towers in relation to proposed improvements in both plan and profile views with detail provided as deemed necessary for clarity. Transmission lines and their locations shall be determined by a survey. Plans should include information showing what date and time the survey was performed along with ambient temperature and wind speeds and the survey datum used.

d. Show proposed improvements in plan and profile views with respect to SMUD's existing foundations. Provide cross section view of SMUD's transmission tower/pole indicating top of concrete elevations for foundations, excavation limits and any shoring plans (if applicable), within 25 feet of towers/poles foundations.

e. Plans should be submitted in either hard copy or electronic format (preferred). Hard copy plans should be in architectural B, C or D sizes depending on the level of detail in subject drawings. Electronic formats are preferred and should be in Adobe .pdf. SMUD may request electronic drawings in AutoCAD 2009 .dwg or .dxf format depending on the complexity of the proposed project.

f. Construction activities within 25 feet of transmission towers will require the presence of a SMUD inspector onsite prior to the beginning of any work in that area, contact information to schedule for an on-site inspector will be provided during the review process.

g. All boom-operated construction equipment shall be equipped with a mechanical lock-out device to prevent the boom from extending above the Cal-OSHA required clearance distance to SMUD's energized high voltage lines.

h. The applicant is responsible for assessing any impacts (including but not limited to induced voltage effects) to its facilities as a result of constructing and operating their facilities within close proximity to SMUD's high voltage lines.

i. All above ground metallic facilities proposed within the SMUD easement must be properly grounded. Grounding plans should be stamped by a licensed California engineer and submitted to SMUD as part of the review process.

j. There shall be no long term staging or storage of construction materials within the

SMUD easement, such materials shall be removed from the easement at the completion of the project. Any material stored within the easement will be moved immediately if requested by SMUD.

k. There shall be no storage of fuel or combustibles and no fueling of vehicles within the SMUD easement.

l. SMUD shall maintain access to its facilities at all times in order to operate the transmission system reliably and as such applicants must agree to the following requirements;

   i. Allow SMUD to close any trail or park for emergency maintenance activities without prior notification.

   ii. Applicant must agree to allow SMUD to close any trail or park for planned maintenance activities with three (3) weeks prior notification to the appropriate authority.

m. Maintenance/construction pads must be maintained around SMUD transmission towers as shown in attachment drawings GFE-001 thru GFE-004, to allow SMUD crews to conduct heavy maintenance as required.

n. The proposed trails shall not remove any existing access road. Joint use of public facilities is not allowed. Applicant shall either move the bike trail so as to not disturb the existing access road or provide an access road that meets the following requirements;

   i. All access roads must be a minimum of 15 feet wide

   ii. Minimum radius of 75 feet measured at the centerline of the unusable road surface.

   iii. All access roads within SMUD right of way must be sized for heavy construction vehicular traffic, passable with 100 ton crane and H20 loading.

o. Trees planted within SMUD's easement shall be no taller than 15 feet at maturity and shall be planted 15 feet off the conductor drip line. A list of acceptable trees and shrubs is provided in the attachment of this guideline.

p. Sprinklers systems shall not spray directly on any tower foundations.

q. No permanent structures, gazebos, or playground equipment, are allowed within SMUD's transmission easement.

r. SMUD reserves the right to construct new facilities SMUD may find necessary within its legal easement. Any developments installed within this easement may need to be removed or modified as a result of the new installed facilities at the owner's expense.

s. Any grading activities shall conform to the requirements set forth in section 6 and 7 of this guideline.

6. Permission to Grade

Developers must submit grading plans and site development plans (including geotechnical reports if applicable), signed and dated, for SMUD's review. All SMUD facilities, existing structures, structure numbers, existing anchors, right of way boundaries, document recording information and existing and proposed access roads must be shown on the submitted plans.

It is the developer's sole responsibility to comply with all rules, regulations, and orders of State, County, and local agencies having jurisdiction. For example, the California Department of Education has developed recommendations for minimum distances between schools and transmission lines as part of its school site selection and approval guide. For further information about the guide, contact: The School Facilities Planning Division Coordinator, Department of Education, P.O. Box 944272, Sacramento, California 94244-2770.

Also, location of developer's improvements above or below ground and/or adjacent to SMUD rights of way requires the developer to be in compliance with CALOSHA and/or the rules for Overhead Electric Line Construction, General Order No. 95 and Underground Electric Line Construction General Order No. 128 CPUC (California Public Utilities Commission), during their construction and maintenance of those facilities.

Information on CAL-OSHA can be found at the following location http://www.dir.ca.gov/dosh/. **Grading without SMUD's written permission is not permitted within SMUD transmission rights of way**. Any necessary steps, including legal action, will be taken to stop activity and restore the rights of way to its original condition at the developer's expense.

7. Grading and Clearances

Conceptual drawings, tentative maps, layouts, and preliminary and final grading plans should be prepared with the following in mind:

a. **Clearances:** All grading shall maintain safe electrical clearances set forth by the California Public Utilities Commission's General Order 95.

b. **Drawings:** Show SMUD's transmission lines, easement lines, and towers in relation to proposed improvements in both plan and profile views with detail provided as deemed necessary for clarity. Transmission lines and their locations shall be determined by a survey. Plans should include information showing what date and time the survey was performed along with ambient temperature and wind speeds and the survey datum used. Profile drawings submitted to SMUD shall be drawn to a scale of 100 feet horizontally and 20 feet vertically or 200 feet horizontally and 40 feet vertically.

c. **Compaction:** Any and all fill shall be engineered and placed to a minimum compaction of ninety percent (90%) maximum dry density as determined by American Society for Testing and Materials (ASTM) D1557, unless specified otherwise. Where there is the

possibility of future structures being placed in the rights of way, SMUD may require compaction to a minimum of ninety-five percent (95%) maximum dry density. Compaction tests are performed by a third party, at the developer's expense.

d. **Maintenance/Construction Pads:** All existing structures and all future structure positions shall be provided with level maintenance/construction pads as well as working areas as indicated by attachment drawings GFE-001 through GFE-004. Stringing and construction areas shall remain undisturbed.

e. **Excavation/Cut/Fill Clearances:** Any grading shall not affect the integrity of the tower/pole footings. No cut or fill will be allowed within the horizontal distances indicated below, measured from the face of each type of structure or anchor.

   i. Wood pole or anchor 15’

   ii. Steel lattice tower 25’

   iii. Steel pole 25’

f. **Retaining System:** Any retaining walls and devices within three (3) times the distance and within the SMUD transmission easement as specified in items d and e will be considered as structurally integral to the transmission structure. All such devices will require SMUD’s approval of developer's plans.

g. **Graded Slopes:** Graded slopes of up to 2:1 may be selectively permitted for distances not to exceed 200 linear feet. Longitudinal grading encroachments, cuts or fills may not exceed ten (10) feet into the right of way.

h. **Structure Foundations:** At all times during grading structure foundations must remain clear of debris and dirt with a minimum reveal of 6” above grade. Foundations must not be subjected to standing water.

i. **Onsite SMUD Inspection Required:** Construction activities within 25 feet of tower/poles shall be in the presence of a SMUD inspector. Contact for SMUD Inspection Services will be provided during the review process.

j. **Protective Barriers:** Developer will be responsible to protect SMUD’s towers/poles during any construction activities. In areas where public vehicular traffic will be encroaching on SMUD’s tower/poles within 10ft, the developer will be required to install crash barriers per attachment drawing GFE-019.

8. Roads and Drainage

SMUD’s access roads must be designed to accommodate all types of vehicles used for roadway construction, placement of poles and/or towers, wire stringing and maintenance during all phases of construction and maintenance. Developers should comply with the appropriate City and County standard specifications and ensure that adequate access is provided at all times.

a. **Grading Plans/Improvement Plans:** Existing and proposed access roads will be shown on the grading/improvement plans.

b. **Access:** Access and through access, to and along the rights of way, is required on a 24-hour basis to all SMUD facilities, structures, and anchors for patrol, maintenance, and emergency vehicles.

c. **Widths:** Minimum width on access roads shall be fifteen (15) feet. Curves require additional road width as shown on the table below.

d. **Horizontal Curves:** All road curves shall have a minimum radius of seventy-five (75) feet measured at the centerline of the usable road surface. Inside edge of the curves shall be used as the control for establishing road grades.

Radius of Curvature	Additional Road Width
75’ – 100’	6’
101’ – 150’	5’
151’ – 200’	4’
201’ - 400’	3’
Over 400'	2'

e. **Speed Limit:** Unpaved roads may be designed for 15 mph maximum speed.

f. Wearing Surface:

Road Grade	Surface
0–10%	Native Soil
11-14%	Class 2 Base (6” thick)
15–17%	Asphalt (4” AC over 6”Class 2 Base)
18–20%	Concrete (5 ½” over 6”Class 2 Base)

g. **Grades:** Road grades over fifteen percent (15%) are discouraged and require special review. Grades of 15% to 20% shall be limited to a length of 250 ft. maximum. Consideration must be given to drainage issues.

h. **Cross Slopes:** The road shall be sloped (2% typical cross slope) to prevent ponding or damage from undirected water flow and in accordance with drawings GFE-013 through GFE-018. When the road is designed to slope away from the cut bank, the water shall be allowed to drain as sheet flow onto the downhill slope (not allowed when slope is fill) unobstructed by drainage swales or berms. When the road is sloped towards the cut bank, a drainage swale along the inside edge of the road shall be provided. Water bars shall also be provided across the road to direct water into the drainage swale. (See attachment drawing GFE-012).

i. **Vertical Curves:** Typically, vertical curves are not necessary in the design and construction of access roads. However, where grade breaks over 6% occur, the resulting profile should be evaluated against high centering and tail dragging.

j. **Stopping Sight Distance:** Care should be taken to provide stopping sight distance at all intersections with other roadways, public or private. Typical design per Section 200 of Caltrans’ Design Standards should be adequate.

k. Deadends/Turnarounds: All dead-end or stub roads over 500 feet in length shall be provided with a Y-type, T-type, or circular type turnaround.

l. **Drainage Design:** Drainage systems shall be sized for a 10-year storm based on the Sacramento County Flood Control Design Manual. Ponding will not be allowed. Where access roads meet a publicly maintained road, drainage shall be designed to meet the minimum requirement of the municipality or agency having jurisdiction over the publicly maintained road (usually a 100-year storm) and meet current Storm Water Pollution Prevention Plan (SWPPP) requirements.

m. **Dip Section:** Dip sections should be constructed at natural grade so as not to impede upstream runoff from crossing the road.

n. **Swales:** Brow ditches, swales, etc. should be avoided within the rights of way except transverse to the rights of way and then they shall provide heavy construction equipment access across same. Drainage swales shall be emptied by means of a culvert to the down slope side of the road which then empties onto an energy dissipater or into a natural drainage way.

o. **Culverts:** Corrugated Metal Pipes (CMP) should be used with a minimum of 2 feet of cover. CMP's shall be specified to have a service life of 25 years, based on soil characteristics. Coupling bands and cut-off walls are required. Damaged coating shall be repaired per manufacturer's recommendation. For CMP use in SMUD rights of ways, all metal pipes shall be coated with asphalt for corrosion resistance. Minimum design shall meet requirements shown on attachment drawing GFE-009. Developer shall design the size of the CMP culvert to meet the 10-year storm requirement or 12" diameter whichever is greater.

p. **Flume/Dip Apron:** Where subject to erosion, roadway banks and natural soil shall be protected by galvanized steel intakes (dip aprons) and down slope drains (troughs) (See attachment drawing GFE-010). Energy dissipaters shall be installed at drain outlets outside of the rights of way.

q. **Water Bars:** Minimum design shall meet the requirements shown on attachment drawing GFE-012. Water bars shall be open at the lower end to allow drainage and be placed at an approximate angle of 30 to 45 degrees to the transverse section of the road spaced as follows:

Average Road Grade	Maximum Spacing
0-5%	Not Required
5%	125 feet
10%	80 feet
15%	60 feet
20%	50 feet

r. **Loading Requirements:** All private roadways within the rights of way or roads used as access for SMUD will be sized for heavy construction vehicular traffic, see attachment drawing GFE-021.

s. **Utility and Street Crossings:** All utility and street crossings shall be kept to a minimum and should be designed to cross the rights of way or roadways at as close to ninety (90) degrees as possible. Road intersections will not be allowed within SMUD's transmission rights of way.

t. **Maintenance Pads:** See attachment drawings GFE-001 through GFE-004.

u. **Blasting:** Blasting is not permitted on or near the vicinity of SMUD's rights of way, unless written approval *(Consent Agreement or Joint Use Agreement)* is obtained from SMUD's Real Estate Department.

v. **Erosion Control:** All roads and slopes shall have erosion control during and after construction. Best Management Practices (BMPs) shall be applied. Erosion control shall not block access roads at any time. Developer shall assume all responsibilities for obtaining any and all storm water pollution prevention plan (SWPPP) permits and maintaining any and all required BMPs, inspections, repairs and logs, required per the permit and the permitting authority.

9. Fences, Walls, Gates and Other Structures

Fences, walls, gates, and lighting standards may be allowed within the rights of way only with written approval (*Consent Agreement or Joint Use Agreement*) from SMUD's Real Estate Department.

a. **Fences:** Fences and/or walls less than 15 feet in height may be allowed if properly grounded and if access to and along the rights of way is not obstructed and if access to individual structures is not obstructed. (See attachment drawings GFE-005 through GFE-008).

b. **Gates:** Gates will be required where a SMUD access road is obstructed. Gates shall meet the following criteria:

   i. All gate openings must be a minimum of fifteen (15) feet in width.

   ii. Gates must be at least 300 feet apart.

   iii. All gates must be provisioned for a SMUD standard lock.

c. **Lighting or Signal Standards:** Lighting or signal standards, up to a maximum of fifteen (15) feet in height may be located within the rights of way 15' off the drip line of the conductor. All lighting standards and metallic objects within the right of way must be properly grounded.

d. **Prohibited Structures in Rights of Way:**

   i. **High Pressure Valves:** Fire hydrants, air release valves, back flow preventers, post indicator valves, or any other high pressure valves shall not be allowed within the rights of way.

   ii. **Manholes:** Below ground manholes (sewer, water, CATV, etc.) shall not be designed to be within the rights of way.

iii. **Structures:** No permanent buildings or structures are allowed within transmission right of way.

10. Vegetation

Supplemental planting, re-vegetation or mitigation measures will not be placed in, or interfere with SMUD's existing access roads or existing cleared work areas such as maintenance pads. The developer or landowner will verify the location of existing access roads and work areas with SMUD and submit a plan for review and written approval prior to installing any supplemental planting, re-vegetation or mitigation in SMUD rights of way.

a. **Supplemental Planting:** SMUD's rights of way may be used for supplemental planting purposes upon receipt and written approval of the following items:

   i. A biological report describing the quality of the existing vegetation and/or habitat located within SMUD's rights of way, and

   ii. A letter from the governing body requiring the developer to plant within SMUD's rights of way and stating the additional vegetation is not part of the environmental mitigation requirements.

b. **Clearances:** No trees shall be planted within 15 feet (horizontally) of any conductor drip line or within working spaces and maintenance pads. A working zone is required around any structure as indicated on attachment drawings GFE-001 through GFE-004. These areas must be kept clear of any obstructions.

c. **Irrigation:** Irrigation systems shall not spray directly onto any gas or electric facilities, access roads or maintenance pads.

d. **Access:** Planted vegetation shall not restrict SMUD's access to any of its facilities.

e. **Tree Species Restrictions and Requirements:** Certain types of trees are not allowed due to their height as they present the potential to become hazard trees and could fall onto transmission facilities, such as pine, oaks, palm trees, etc... **Developers proposing to plant trees within SMUD's rights of way shall provide a tree species schedule along with their landscaping plans for SMUD's review and written approval.**

11. Access and Encroachment Documents

Below is a summary of the documents required for access to or the placement of encroachments in SMUD's Transmission rights of way;

a. **Consent to Common Use Agreement:** This agreement grants permission to occupy a transmission line easement for a specific use given to fee owners of the land which is encumbered by SMUDs transmission line easement.

b. **Joint Use Agreement:** This agreement is for the joint use and occupancy of SMUD easements by other utilities' facilities. These facilities generally include, but are not limited to, sewer, water, roads, and phone systems. The fee for Joint Use Agreements is dependent upon reciprocal no-charge policies by those agencies requesting Joint Use Agreements, the amount of work involved, and any concessions or betterments to the easement the agency is willing to grant.

c. **Construction Restrictions Notification:** Is a temporary work permit that allows certain construction activities which would normally be restricted within SMUDs easement areas.

d. **Quitclaims:** Quitclaims are the relinquishment of an interest in a particular easement crossing property not owned by SMUD. Quitclaims are only granted if there are no current or future planned facilities located within the easement.

12. Relocation of Transmission Facilities

Relocation of transmission facilities is a complex and costly undertaking. All costs are borne by the applicant. Engineering, special order of material, right of way documents, and construction lead times often exceed twelve (12) months. In most cases, early planning with SMUD can provide alternatives to relocation.

13. Electric Transmission Underground

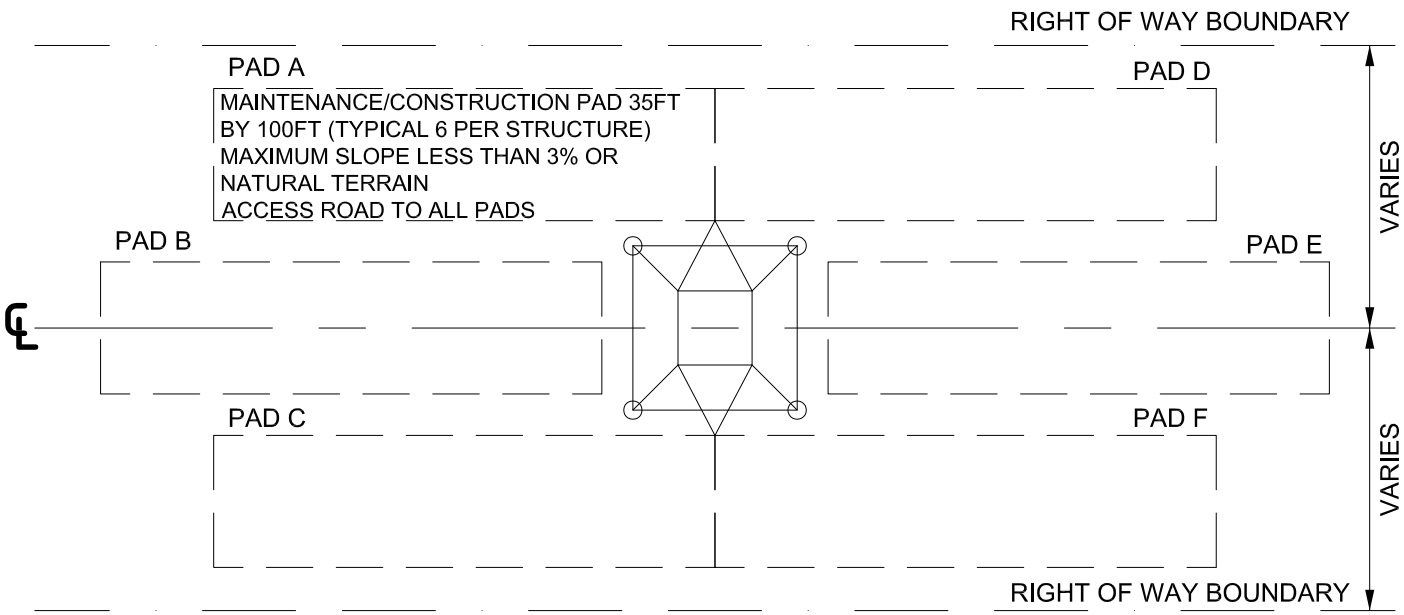
a. **Improvements:** All improvements involving electric transmission underground in SMUD easements must be approved by the SMUD's engineering departments prior to start of work. In addition, a consent to common use agreement, must be obtained from SMUD's Real Estate Department.

b. **Reference:** For additional information regarding underground encroachments please refer to SMUD's technical procedure TP0601, "Minimum Requirements for Excavation in Proximity of SMUD's Underground Transmission Cables".

Guide for Encroachment

Attachment 1

Drawings



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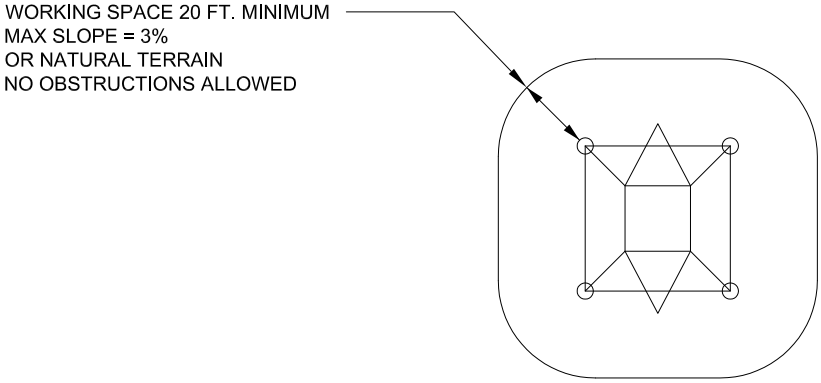

WORKING SPACE

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
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SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: MAINTENANCE & WORKING PADS LATTICE TOWERS	
DR BY: JDH	DATE: 1/13		
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT	
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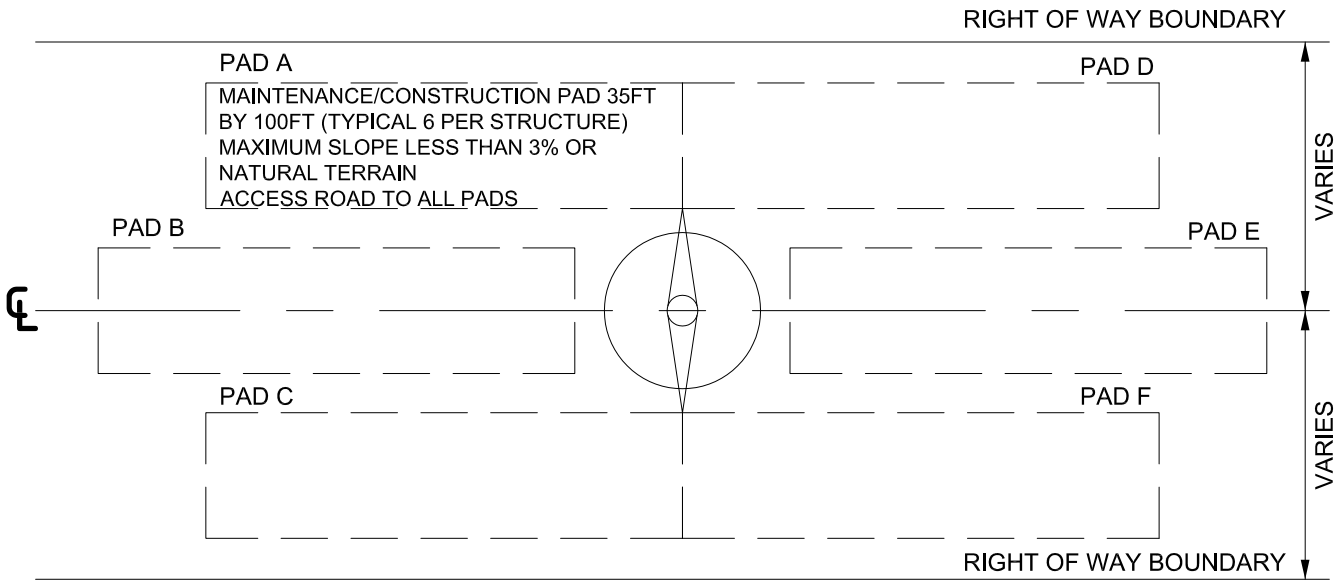
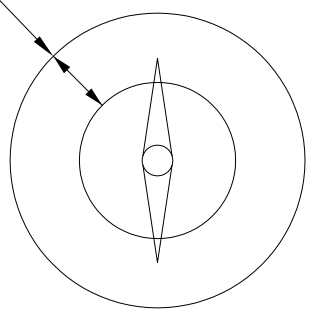


MAINTENANCE PAD REQUIREMENTS

WORKING SPACE 30 FT. MINIMUM
MAX SLOPE = 3%
OR NATURAL TERRAIN
NO OBSTRUCTIONS ALLOWED



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CHKD BY TD	DATE 1/13	LOCATION GUIDE FOR ENCROACHMENT			
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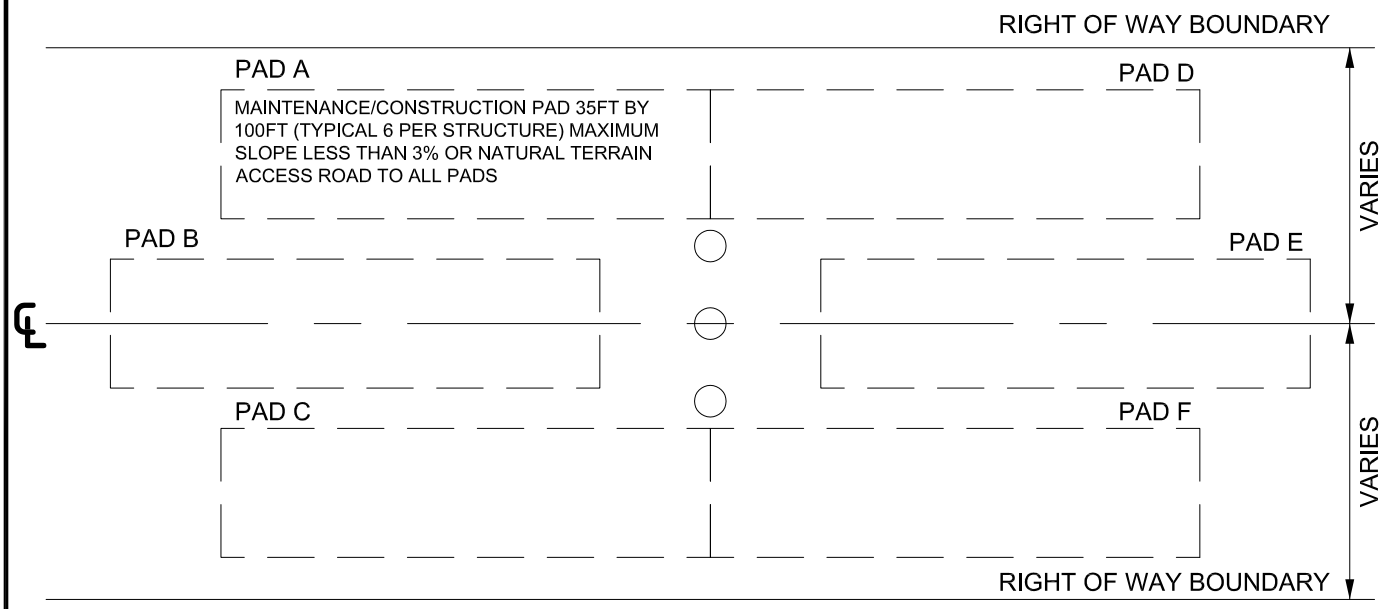

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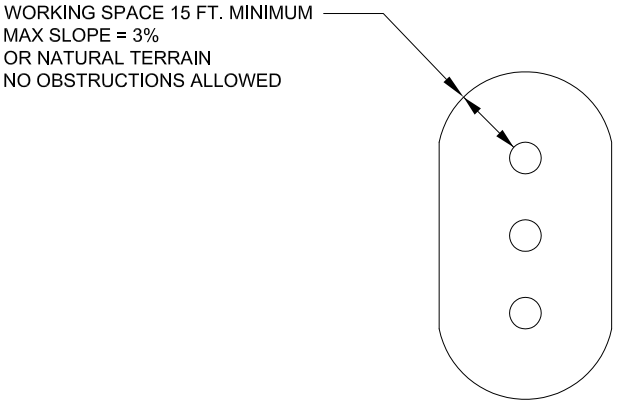

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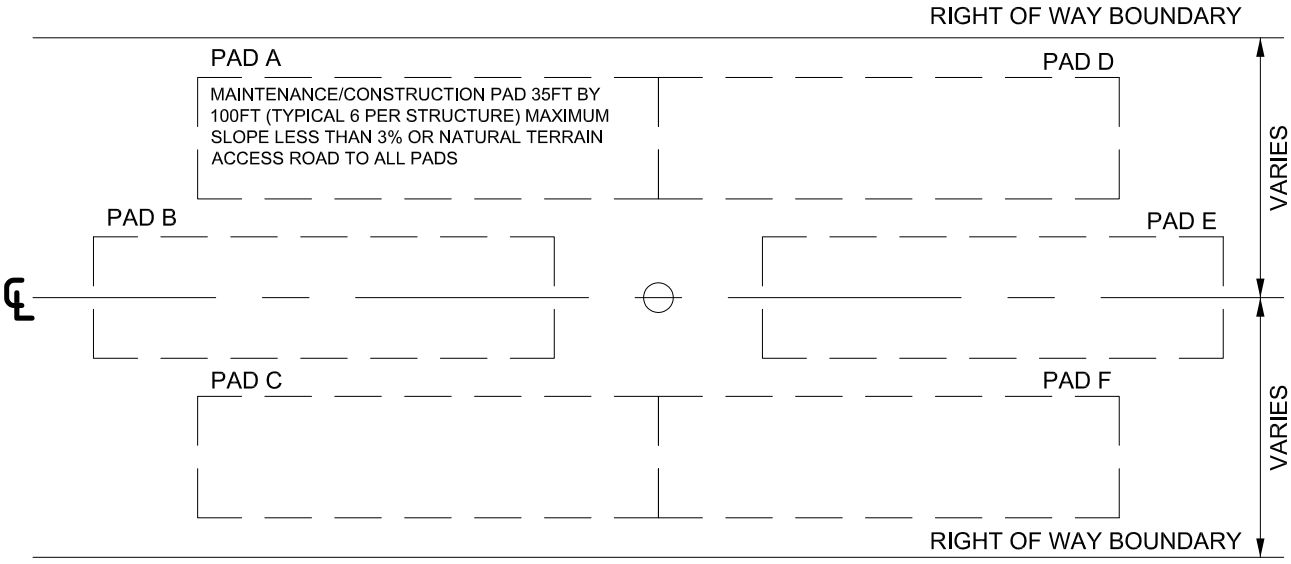

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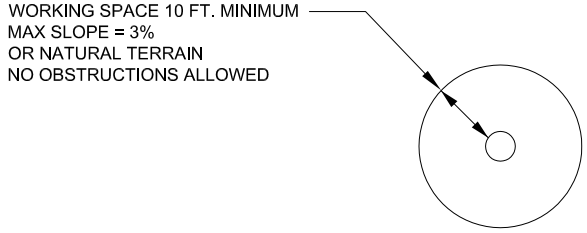

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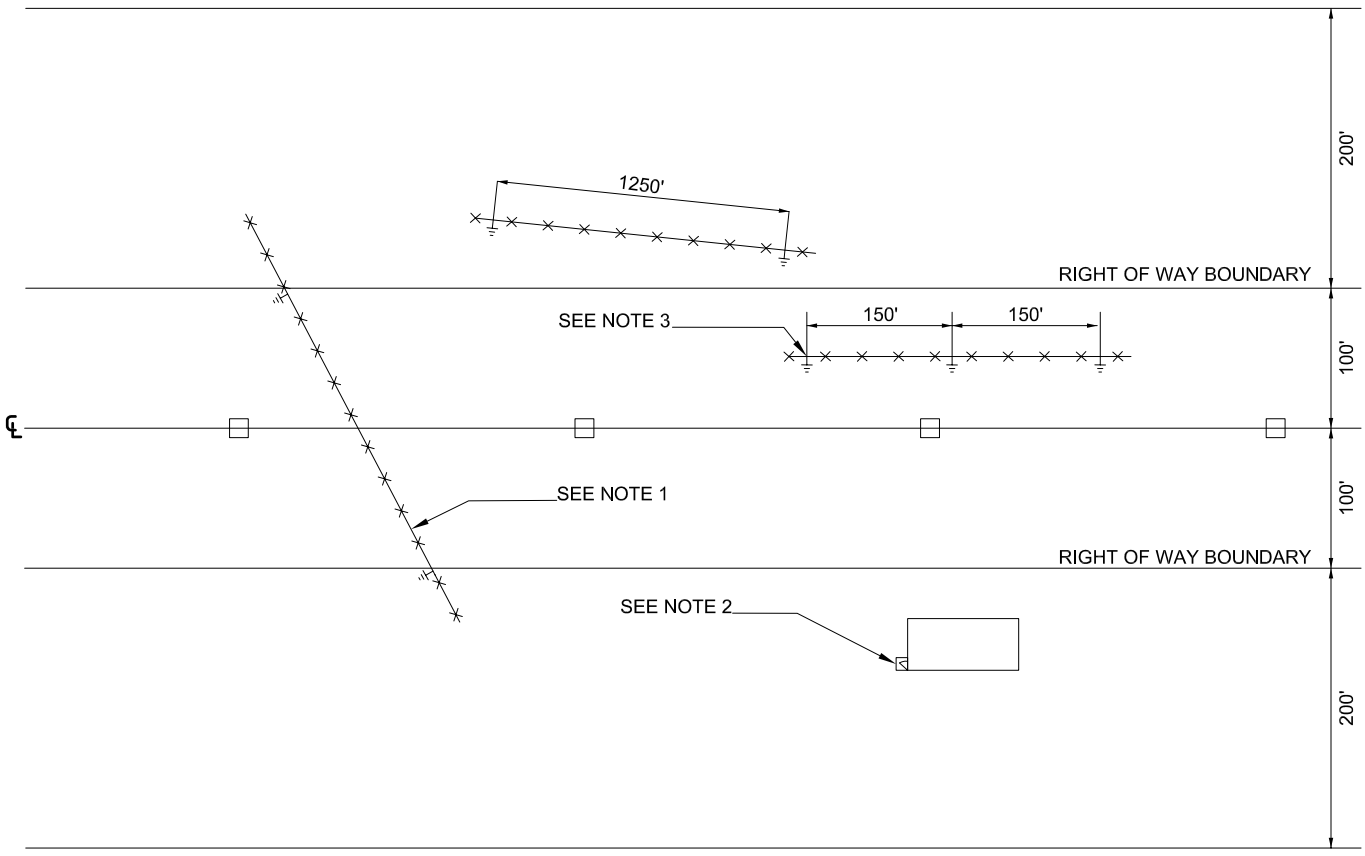
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT	DWG NO.: GFE-004				REVISION: 0



NOTES:

1. FENCES CROSSING THE TRANSMISSION LINE AT AN ANGLE GREATER THAN 30°, ONE GROUND SHALL BE INSTALLED WHERE THEY ENTER & EXIT THE RIGHT OF WAY.
2. METALLIC STRUCTURES WITHIN 200 FEET OF THE EDGE OF THE RIGHT OF WAY SHALL BE GROUNDED.
3. FENCES WITHIN THE RIGHT OF WAY WILL BE GROUNDED AT 150 FOOT INTERVALS & WHERE THEY ENTER & EXIT THE RIGHT OF WAY.
4. FENCES WITHIN 200 FEET OF THE EDGE OF THE RIGHT OF WAY CROSSING AT AN ANGLE OF LESS THAN 30° OR PARALLEL TO THE TRANSMISSION LINE SHALL BE GROUNDED AT 1250 FOOT INTERVALS.

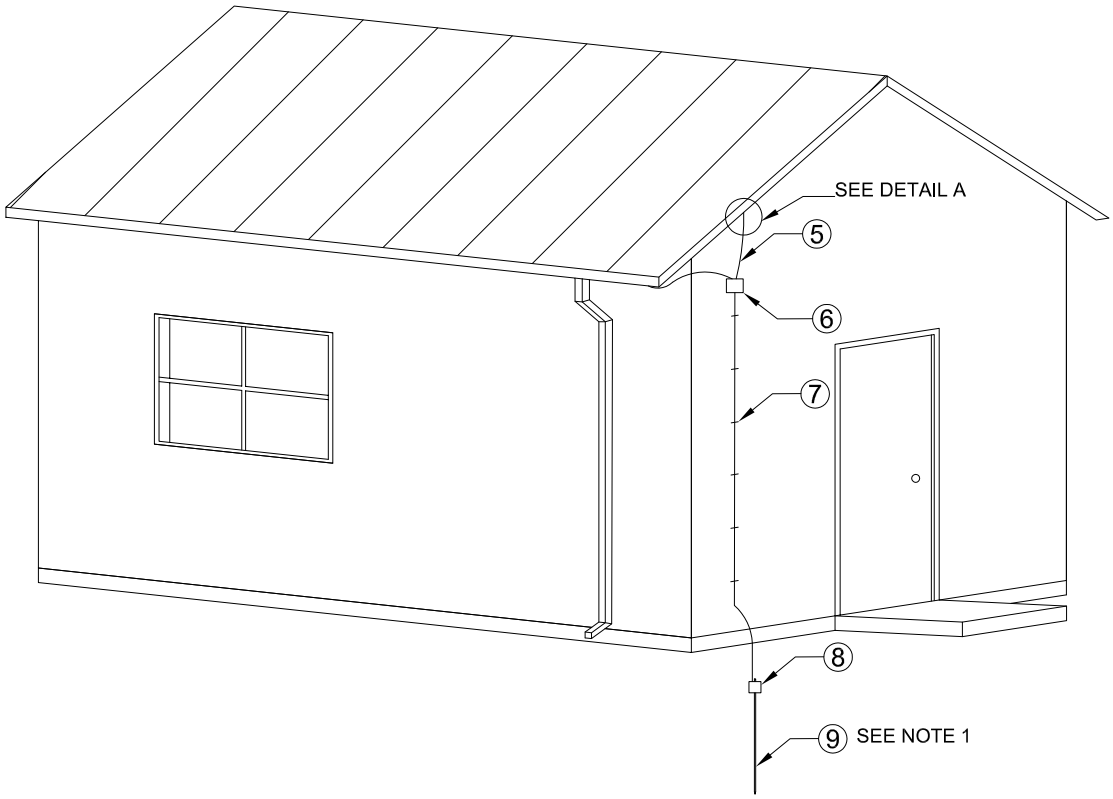
NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: GROUNDING GROUNDING REQUIREMENTS		
DR BY: JDH	DATE: 1/13			
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT		
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13 / DCN: –

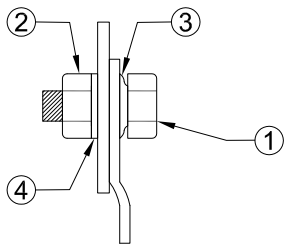
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

DWG NO. GFE–005

REVISION 0



STRUCTURE LOCATED OUTSIDE OF RIGHT OF WAY



DETAIL - A

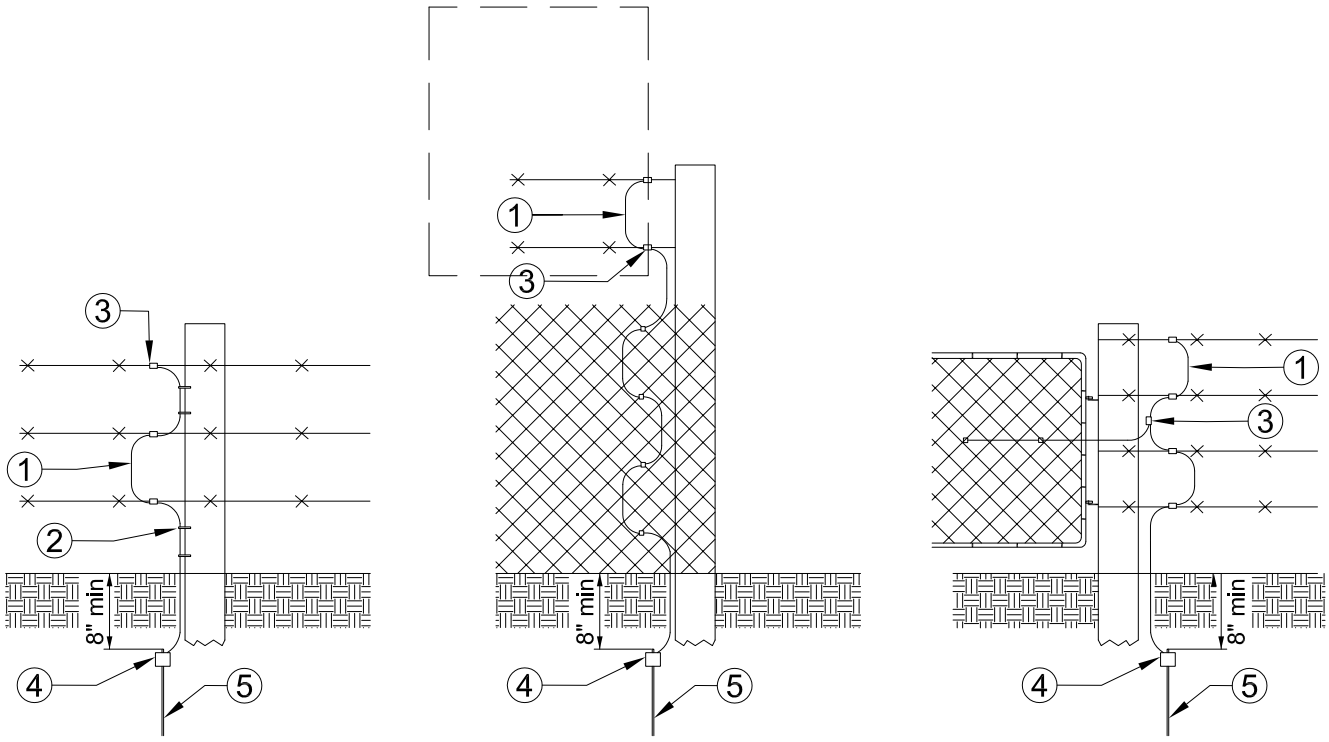
ITEM	DESCRIPTION
1	BOLT, 1/4" X 1" STAINLESS STEEL
2	NUT, 1/4" STAINLESS STEEL
3	WASHER, BELLEVILLE, 1/4" STAINLESS STEEL
4	WASHER, FLAT, 1/4" STAINLESS STEEL
5	WIRE, 1/4", 3 STR. GALVANIZED STEEL
6	CONNECTOR, BURNDY CAT NO. KSU 22 OR EQUIVALENT
7	CLIP, WIRE
8	CLAMP, GROUND ROD, 5/8" BURNDY CAT NO. GKP 635 OR EQUIV.
9	GROUND ROD, 5/8" X 8' COPPERWELD

NOTE:
1. GROUND ROD TO BE INSTALLED 8" MIN. BELOW GRADE

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

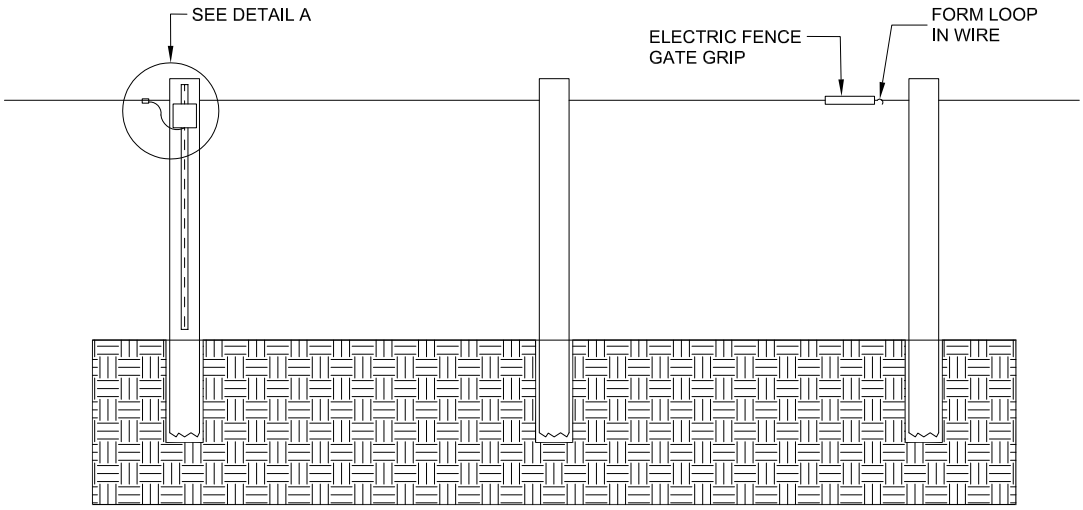
SCALE: NONE	INDEX:	TITLE: GROUNDING METALLIC STRUCTURES	
DR BY: JDH	DATE: 1/13		
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT	
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA
REL DATE: 1/13	DCN: –		
DWG NO.: GFE-006	REVISION: 0		



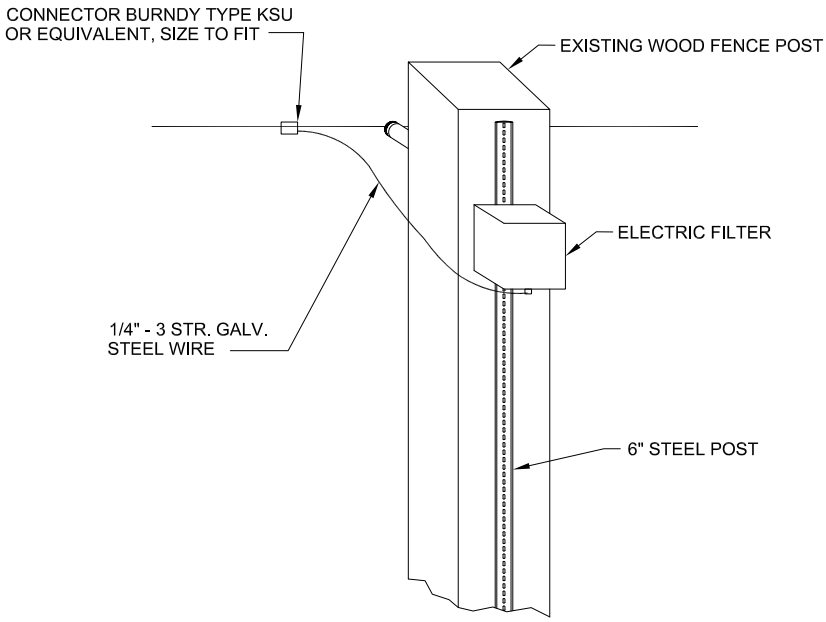
ITEM	DESCRIPTION
1	WIRE, 1/4", 3 STR. GALVANIZED STEEL
2	FENCE STAPLE, 1-1/4" GALVANIZED
3	CONNECTOR, BURNDY, TYPE KSU OR EQUIVALENT, SIZE TO FIT
4	CLAMP, GROUND ROD, 5/8" BURNDY CAT NO. GKP 635 OR EQUIVALENT
5	GROUND ROD, 5/8" X 8' COPPERWELD

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: GROUNDING GATES AND FENCES			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT	DWG NO.: GFE–007				REVISION: 0



TYPICAL ELECTRIFIED WIRE FENCE



DETAIL A

NOTES:

1. 6' STEEL POST SHALL BE INSTALLED AS CLOSE TO EXISTING POST AS POSSIBLE. STEEL POST SHALL NOT BE INSTALLED IF EXISTING FENCE POST IS STEEL.
2. ELECTRIC FILTER SHALL BE FURNISHED BY SYNDYNE CORP.

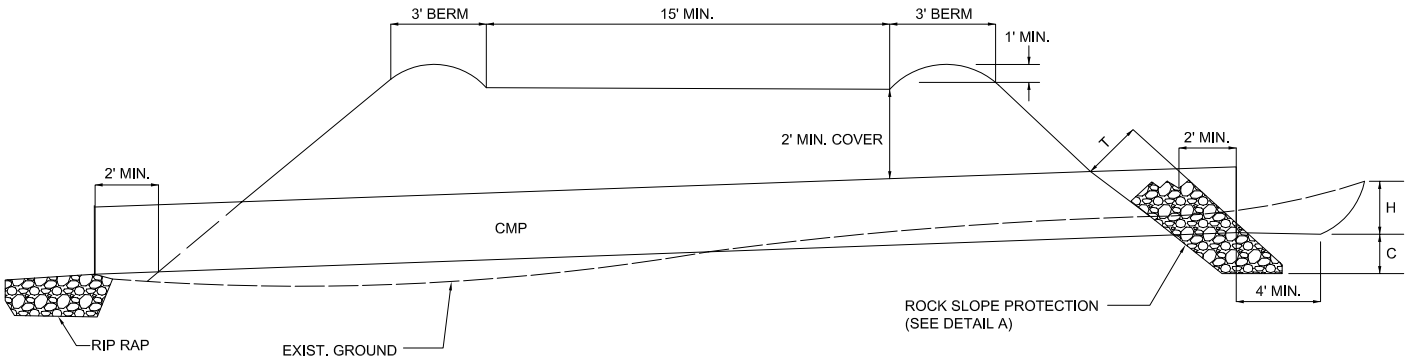
NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: GROUNDING ELECTRIC FENCES		
DR BY: JDH	DATE: 1/13			
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT		
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13 / DCN: –

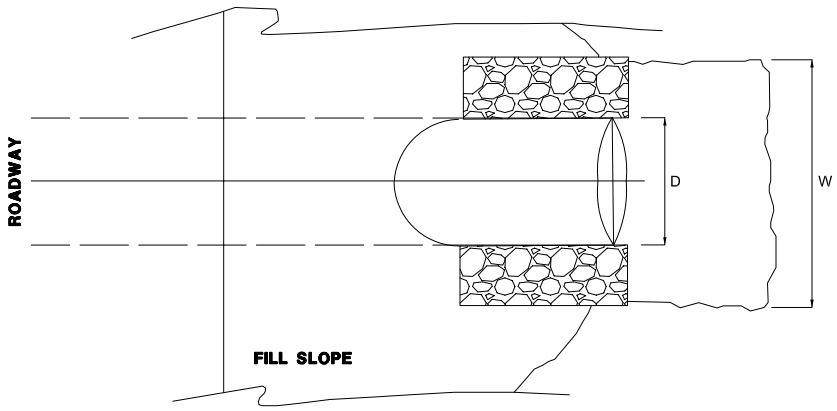
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

DWG NO. GFE–008

REVISION 0



TYPICAL CULVERT INSTALLATION



DETAIL A - ROCK SLOPE PROTECTION

D	W	C	H
18"	3.5'	2.0'	1.0'
24"	4.5'	2.5'	1.0'
36"	5.0'	3.0'	1.5'
48"	8.0'	3.0'	2.0'
60"	11.0'	3.0'	3.0'

FILL SLOPE	STONE* SIZE	H
5%	NONE	---
10%	1.5'	2.0'
15%	2.5'	4.0'
20%	3.0'	5.0'

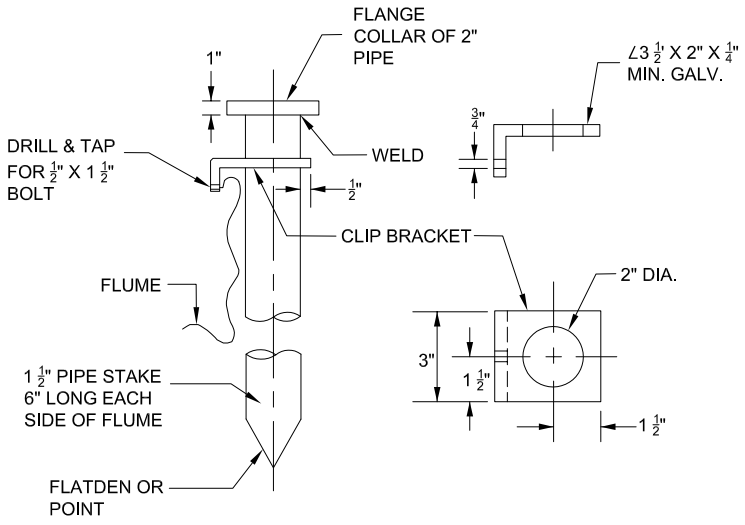
NOTES:

1. * - 60% OF STONES SHALL BE STONE SIZE OR LARGER. 30% OF STONES MAY BE LESS THAN $\frac{1}{5}$ STONE SIZE.

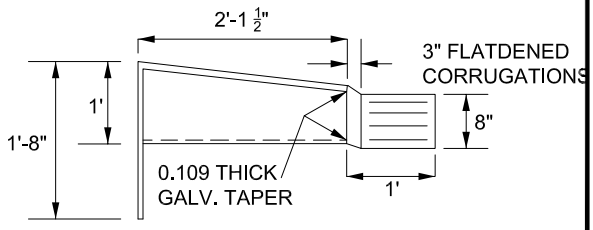
NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

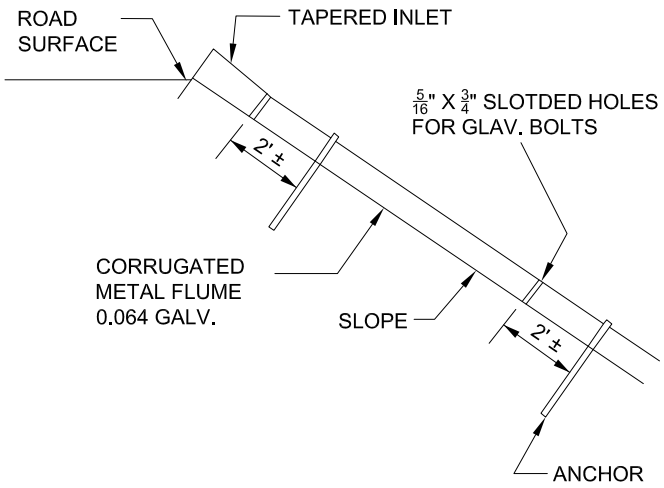
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS CULVERTS			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-009					REVISION: 0

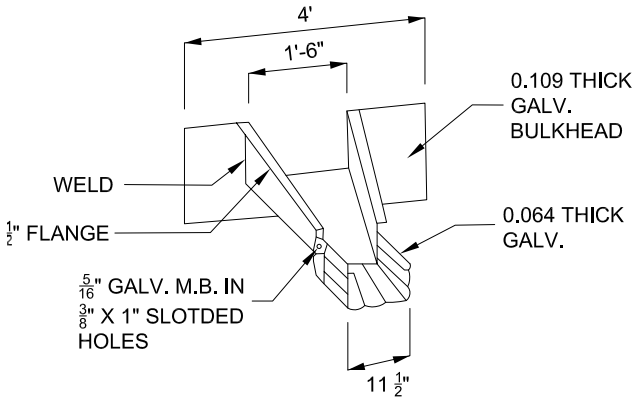


ANCHOR DETAIL





ELEVATION



TAPERED INLET

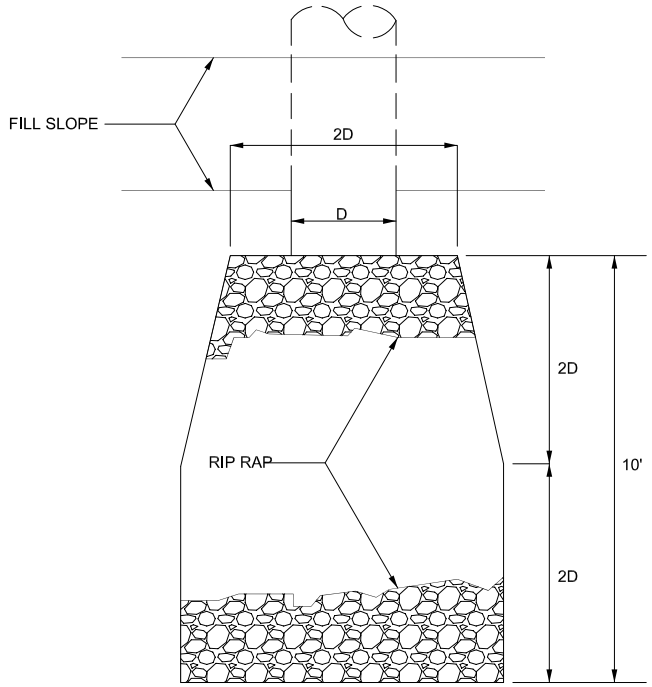
TAPERED INLET & DOWNDRAIN FLUME

NOTES:

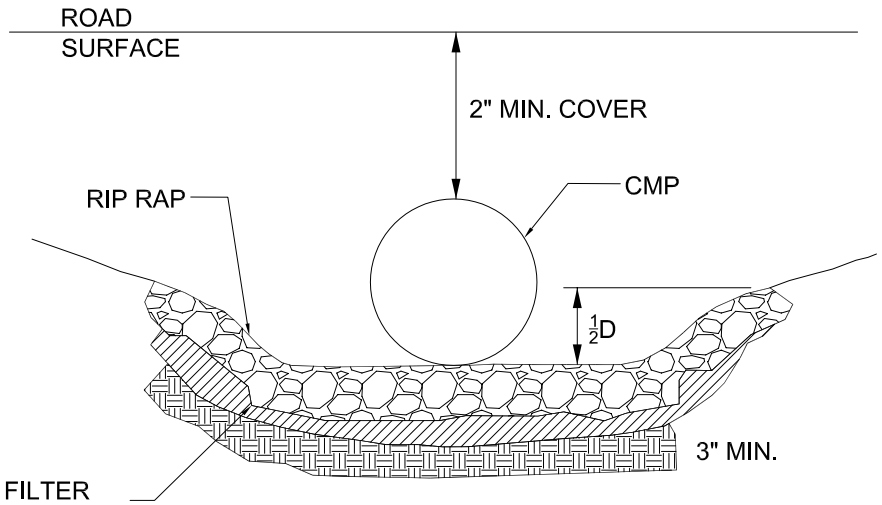
1. ALL METAL PARTS TO BE GALVANIZED AFTER FABRICATION

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS FOR DOWN DRAINS			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT	DWG NO.: GFE-010				REVISION: 0



PLAN



ELEVATION

NOTES:
1. D = DIAMETER
2. TYPE OF RIP RAP
   A. REGULAR QUARRY STONE
   B. BROKEN CONCRETE
3. PLACEMENT
   A. MIN. DEPTH 1½ TIMES AVERAGE STONE SIZE.
   B. ROCKS SHALL BE PLACED SO AS TO PROVIDE A MIN. OF VOIDS
   C. SURFACE ROCKS OR CONCRETE SHALL PROTRUDE TO AT LEAST ½ THEIR VERTICAL DIMENSION
   D. RIP RAP SHALL BE PLACED OVER A FILTER BLANKET WHICH MAYBE EITHER GRANULAR MATERIAL OR FILTER CLOTH

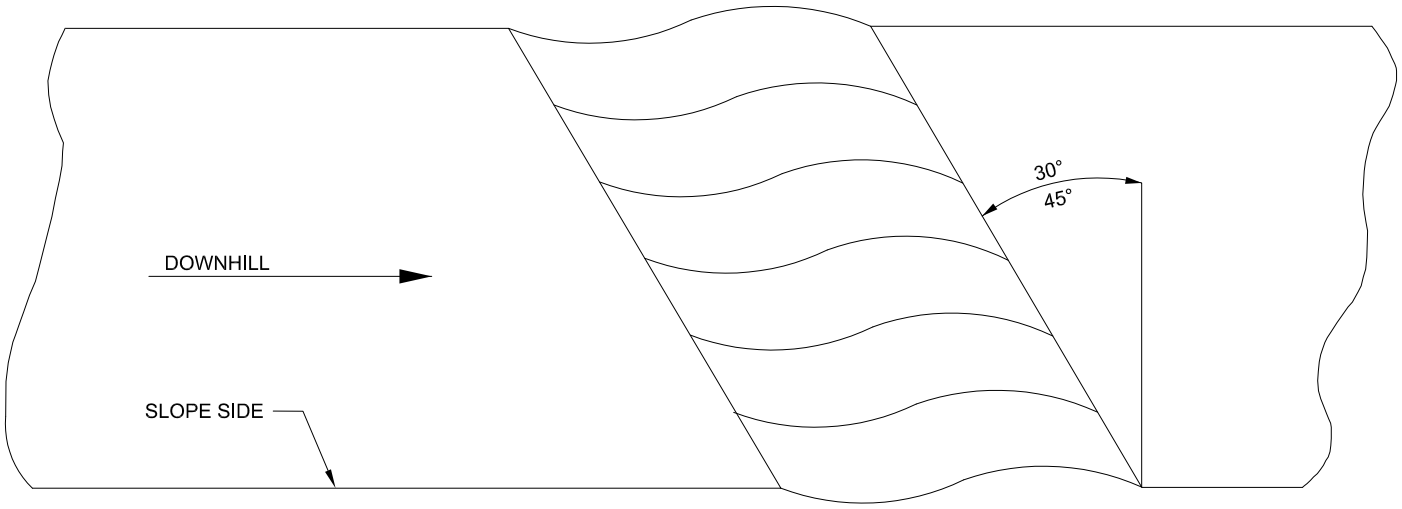
NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS ENERGY DISSIPATOR		
DR BY: JDH	DATE: 1/13			
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT		
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –

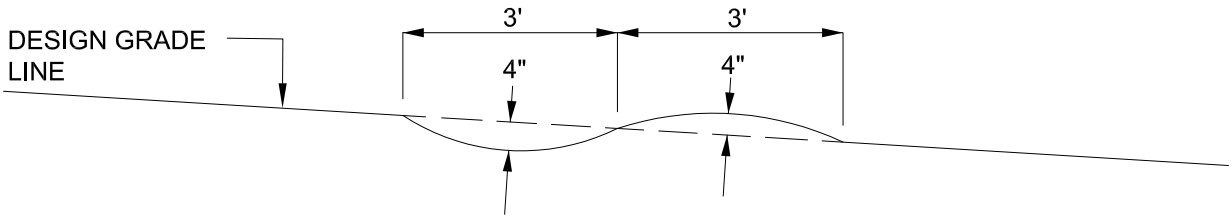
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

DWG NO. GFE-011

REVISION 0



PLAN



PROFILE

TYPICAL WATER BAR

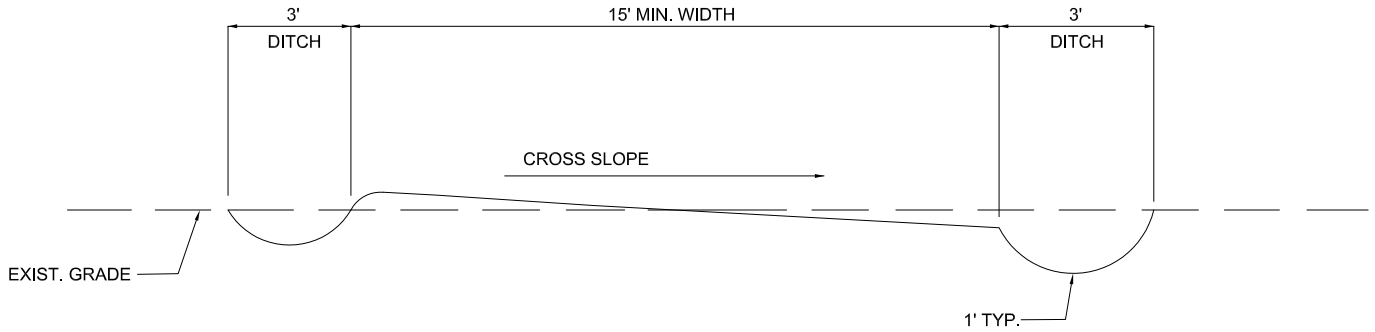
NOTES:

1. THE RIDGE OF EACH WATER BAR IS TO BE MAINTAINED AT AN ELEVATION AT LEAST 4" ABOVE THE ADJACENT DEPRESSION

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS WATER BARS			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-012					REVISION: 0



TYPICAL FLAT SECTION

20% MAX. EXIST. GRADE CROSS SLOPE

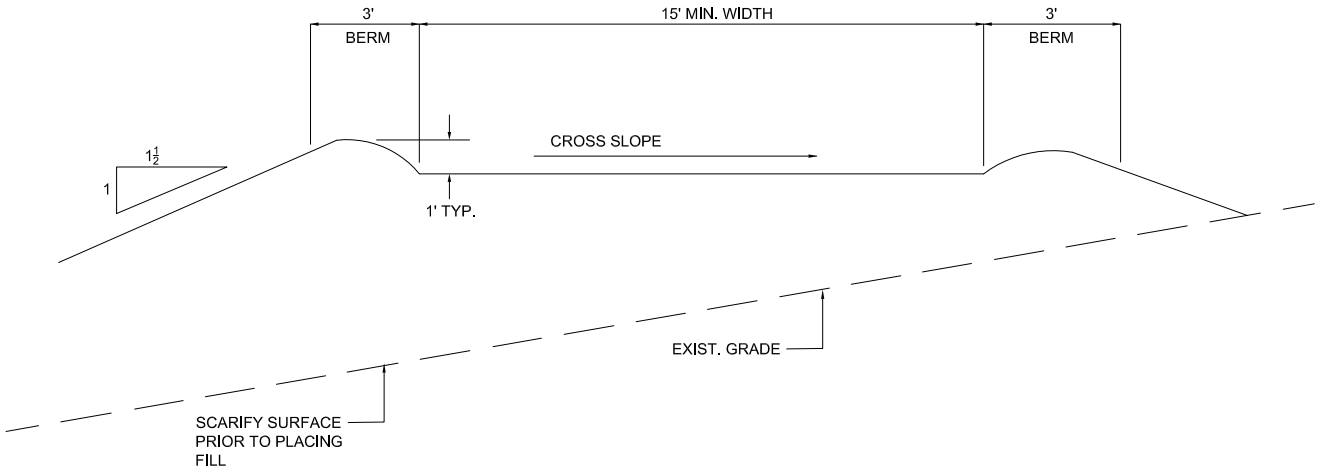
NOTES:

1. SEE DWG GFE-018 FOR CROSS SLOPE

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-013					REVISION: 0



TYPICAL FULL FILL SECTION
40% MAX. EXIST. GRADE CROSS SLOPE

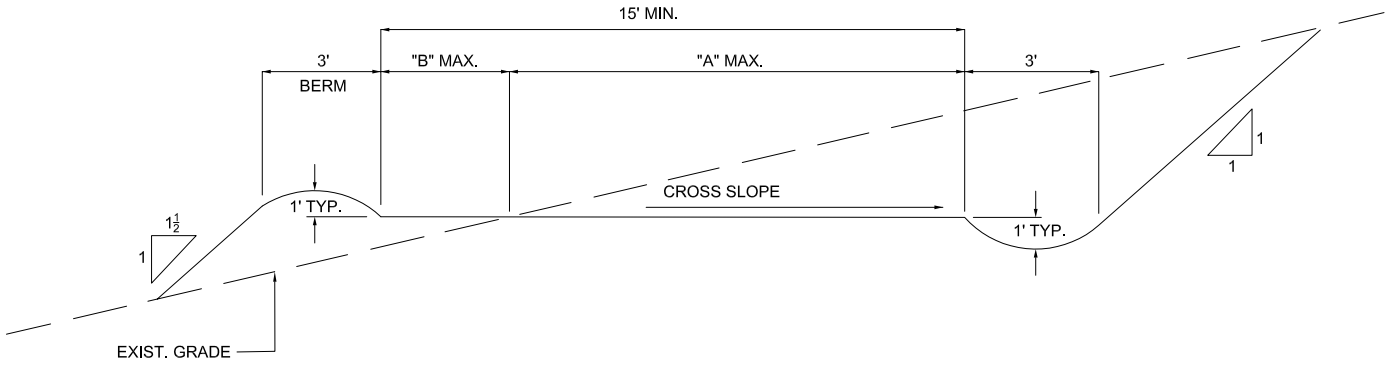
NOTES:

1. SEE DWG GFE-018 FOR CROSS SLOPE

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION	
DR BY: JDH	DATE: 1/13		
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT	
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA
REL DATE: 1/13	DCN: –		
DWG NO.: GFE-014	REVISION: 0		



TYPICAL CUT-FILL SECTION
0-60% EXIST. GRADE CROSS SLOPE

CROSS SLOPE	"A" MIN.	"B" MIN.
0% - 40%	7'	7'
40% - 60 %	10'	4'

NOTES:

1. CUT SLOPES MAY BE $\frac{1}{2}$: 1 IN SOLID ROCK
2. SEE DWG. GFE-018 FOR CROSS SLOPE

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
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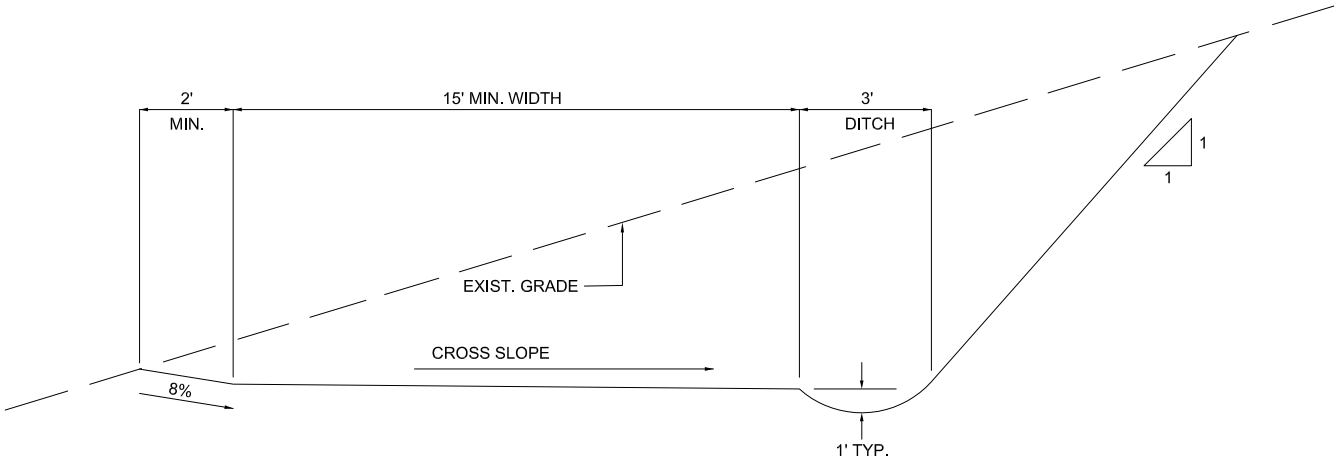


TYPICAL CUT-FILL SECTION
60-80% EXIST. GRADE CROSS SLOPE

NOTES:

1. CUT SLOPES MAY BE $\frac{1}{2}$: 1 IN SOLID ROCK
2. SEE DWG. GFE-018 FOR CROSS SLOPE
3. EXCESS SOIL MAY BE SIDE CAST EXCEPT AS NOTED

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

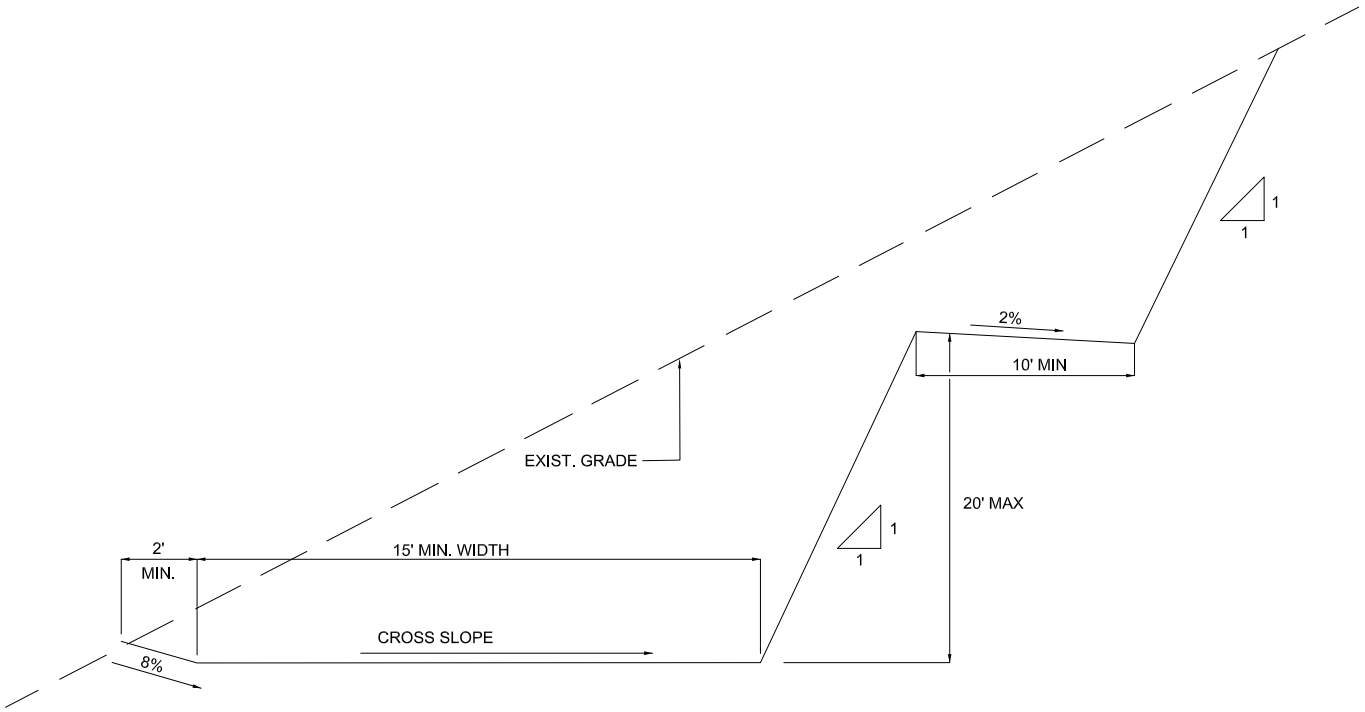
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:
DR BY: JDH	DATE: 1/13
CHKD BY: TD	DATE: 1/13
TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION	
LOCATION: GUIDE FOR ENCROACHMENT	

W.O. NUMBER	DESIGNER/ENGINEER	OVERLAY	SUPERVISOR	REL DATE	DCN
–	JDH	–	DELUCA	1/13	–

DWG NO. GFE-016

REVISION 0



TYPICAL FULL CUT WITH BENCH SECTION

ALL EXIST. GRADE CROSS SLOPES GREATER THAN 80% AND WHERE REQUIRED BY ENGINEER

NOTES:

1. CUT SLOPES MAY BE $\frac{1}{2}$: 1 IN SOLID ROCK
2. SEE DWG. GFE-018 FOR CROSS SLOPE
3. EXCESS SOIL MAY BE SIDE CAST EXCEPT AS NOTED

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

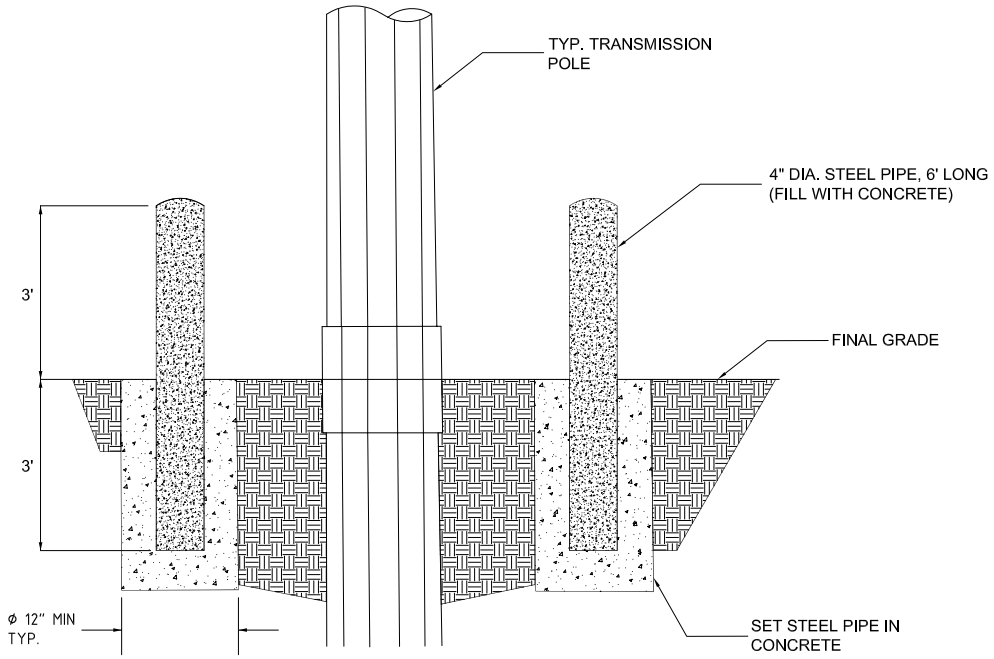
SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-017					REVISION: 0

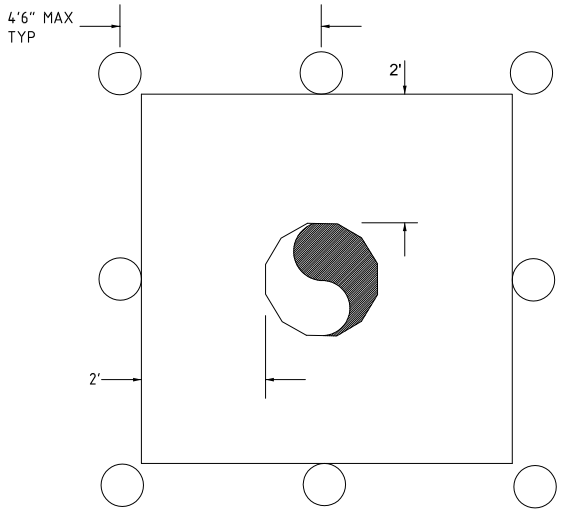
ROAD ℄ GRADE (PERCENT)	MINIMUM CROSS SLOPE TOWARD BUT BANK (PERCENT)	MINIMUM CROSS SLOPE AWAY FROM CUT BANK (PERCENT)
0 - 4	2	2
5 - 7	3	
8 - 10	4	
11 - 12	5	
13 - 15	6	
16 - 17	7	
18 - 20	8	

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: ACCESS ROAD DETAILS TYPICAL ROAD CROSS SECTION			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-018					REVISION: 0





NOTES:

1. STEEL PROTECTION BARRIERS TO BE INSTALLED WHEN TRANSMISSION POLES ARE LOCATED LESS THAN 5' FROM BACK OF CURB OR WHEN NO CURB EXISTS IN THE PARKING LOTS OR SPEED RESTRICTED STREETS WITH 15MPH MAX SPEED LIMIT.
2. BARRIERS ON SIDES NOT ACCESSIBLE TO VEHICLES MAY BE OMITDED.
3. PROVIDE ADEQUATE CLEARANCE FOR EQUIPMENT ITEMS SUCH AS SWITCH OPERATING HANDLES.
4. BARRIERS TO BE PAINTED WITH YELLOW STREET MARKING PAINT.

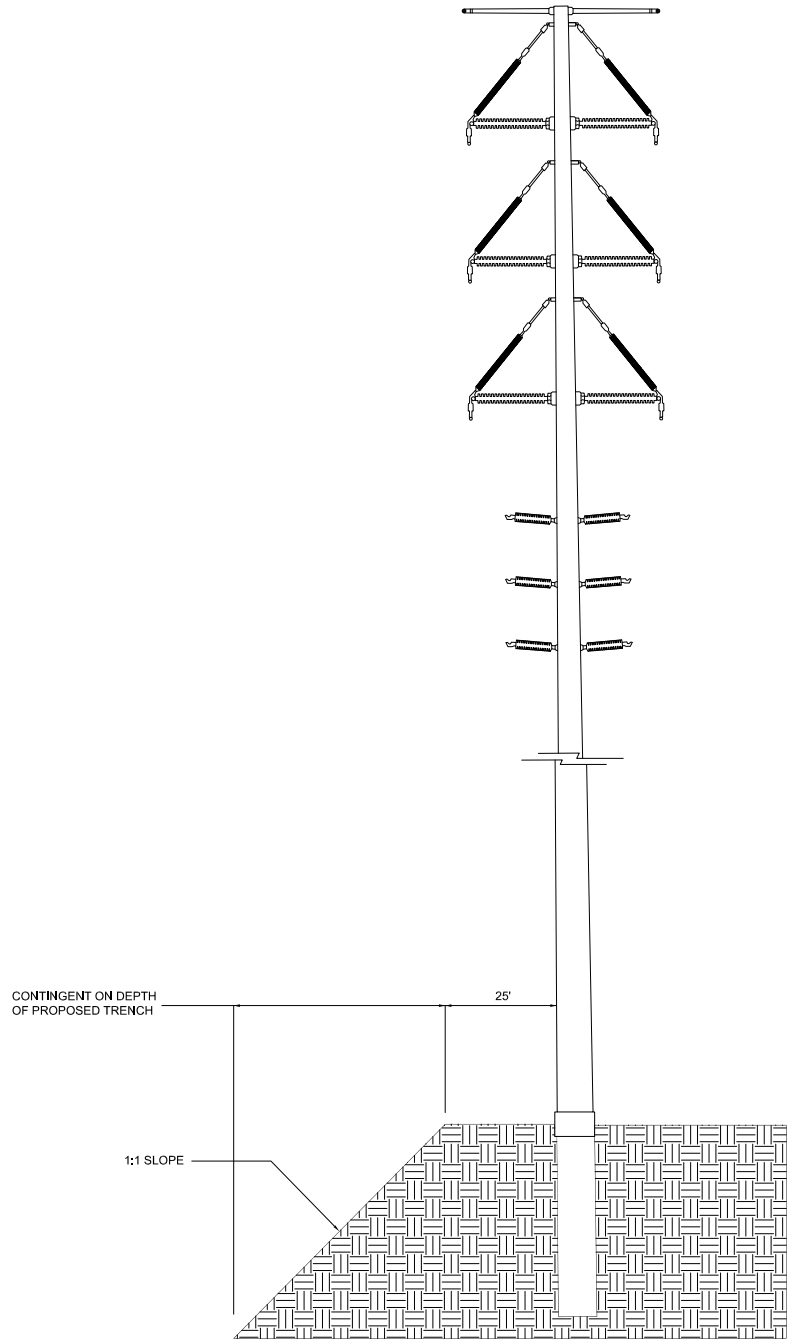
NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: VEHICULAR TRANSMISSION BARRIERS FOR TRANSMISSION POLES		
DR BY: JDH	DATE: 1/13			
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT		
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13 / DCN: –

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

DWG NO. GFE–019

REVISION 0



REQUIREMENTS

MAINTAIN A RADIUS OF 25' 1:1 SLOPE OF UNDISTURBED SOIL AROUND POLES.

IF TRENCH IS WITHIN THE 1:1 SLOPE THEN A TRENCH SHORING DWG MUST BE SUBMITDED, STAMPED BY CALIFORNIA CIVIL ENGINEER, FOR SMUD APPROVAL.

IF TRENCH IS WITHIN THE PRESCRIBED 25' RADIUS, POLE MUST BE BRACED BY SMUD OR SMUD CONTRACTOR AT CUSTOMER/DEVELOPER SOLE COST. ADDITIONALLY, TRENCH MUST BE SHORED AS NOTED ABOVE.

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SCALE: NONE	INDEX:	TITLE: TRENCH DETAILS POLE STABILITY		
DR BY: JDH	DATE: 1/13			
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT		
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13 / DCN: –
SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT	DWG NO.: GFE–020			REVISION: 0

EQUIPMENT	SIZE (WxLxH)	WEIGHT	OUTSIDE TURNING RADIUS
TEREX AERIAL PLATFORM TRUCK 167-FOOT	8.2' x 38' x 13' (22' OUTRIGGER WIDTH)	78,000 lb GVW, 4 AXLES 20,000 lb MAX AXLE WEIGHT 50,600 lb MAX OUTRIGGER LOAD *	65'
GROVE CRANE 175-TON	11' x 51' x 13' (31' OUTRIGGER WIDTH)	147,000 lb GVW, 5 AXLES 28,000 lb MAX AXLE WEIGHT REQUIRES CALTRANS PURPLE PERMIT	45'
LINK-BELT CRANE 100-TON	11' x 47' x 12' (31' OUTRIGGER WIDTH)	119,000 lb GVW, 4 AXLES 28,000 lb MAX AXLE WEIGHT 133,100 lb MAX OUTRIGGER LOAD * REQUIRES CALTRANS PURPLE PERMIT	50'
TRACTOR & FLATBED TRAILER (TOWER OR CRANE EQUIPMENT DRAYAGE)	8.5' x 65' x 13' (18' OUTRIGGER WIDTH)	80,000 lb GVW, 5 AXLES 20,000 lb MAX AXLE WEIGHT	60'
LINE TRUCK WITH EQUIPMENT TRAILER	8.2' x 54' x 13' (18' OUTRIGGER WIDTH)	67,000 lb GVW, 5 AXLES 20,000 lb MAX AXLE WEIGHT	64'
LINE TRUCK	8.2' x 34' x 13' (18' OUTRIGGER WIDTH)	54,000 lb GVW, 3 AXLES 20,000 lb MAX AXLE WEIGHT	64'
FOREMAN TRUCK	8.2' x 23' x 10'	21,000 lb GVW, 2 AXLES 14,000 lb MAX AXLE WEIGHT	55'

* INCLUDES 10% IMPACT LOAD FACTOR

NOTE: THIS LIST REPRESENTS TYPICAL SMUD EQUIPMENT UTILIZED FOR TRANSMISSION LINE MAINTENANCE AND REPAIR WORK. THIS LIST IS NOT A COMPLETE LISTING OF ALL EQUIPMENT NECESSARY FOR TRANSMISSION LINE MAINTENANCE AND REPAIR WORK.

NO.	DATE	REVISION	DR BY	CKD BY	DESIGNER/ ENGINEER	SUPERVISOR
0	1/13	ORIGINAL	JDH	TD	JDH	TD

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

SCALE: NONE	INDEX:	TITLE: TRANSMISSION LINE MAINTENANCE EQUIPMENT DATA			
DR BY: JDH	DATE: 1/13				
CHKD BY: TD	DATE: 1/13	LOCATION: GUIDE FOR ENCROACHMENT			
W.O. NUMBER: –	DESIGNER/ENGINEER: JDH	OVERLAY: –	SUPERVISOR: DELUCA	REL DATE: 1/13	DCN: –
DWG NO.: GFE-021					REVISION: 0

Guide for Encroachment

Attachment 2

List of Approved Trees and Bushes

List of Acceptable Bushes and Trees for Planting Within SMUD transmission Rights of Way

Note: This list is not all inclusive. All tree and bush species proposed for planting within a SMUD transmission right of way shall be less than 15 feet in height at maturity.

Common Name	Botanical Name	Deciduous/Evergreen
SHRUBS		
Graceful Wattle Acacia	Acacia decora	Evergreen
Japanese Maple	Acer palmatum 'Butterfly'	Deciduous
Japanese Maple	Acer palmatum 'Filiferum Purpureum'	Deciduous
Dwarf Strawberry Tree	Arbutus unedo 'Compacta'	Evergreen
Howard McMinn Manzanita	Arctosaphylos densiflora 'Howard McMinn'	Evergreen
Japanese Aucuba	Aucuba japonica	Evergreen
Darwin Barberry	Berberis darwinii	Evergreen
Bird of Paradise Bush	Caesalpina gilliesii	Deciduous/Evergreen
Mexican Bird of Paradise	Caesalpina mexicana	Evergreen
Red Bird of Paradise	Caesalpina pulcherrima	Deciduous
Narrow-Leafed Bottlebrush	Callistemon linearis	Evergreen
Bush Anemone	Carpenteria californica	Evergreen
Concha Wild lilac	Ceanothus 'Concha'	Evergreen
Frosty Blue Wild Lilac	Ceanothus 'Frosty Blue'	Evergreen
Julia Phelps Eild Lilac	Ceanothus 'Julia Phelps'	Evergreen
Chinese Redbud	Cercis chinensis	Deciduous
Mexican Orange	Choisya ternata	Evergreen
Cotoneaster	Cotoneaster lacteus	Evergreen
Multiflorus Cotonester	Cotoneaster multiflorus	Deciduous
Golden Elaeagnus	Elaeagnus pungens 'Maculata'	Evergreen
Southern Health Loquat	Erica australis	Evergreen
Frades Pink Escallonia	Escallonia x exoniensis 'Frades'	Evergreen
Burning Bush	Euonymus alata	Deciduous
Golden Variegated Japanese euonymus	Euonymus japonica 'Aureo-variegata'	Evergreen
Silver King Euonymus	Euonymus japonica 'Silver King'	Evergreen
Forsythia	Forsythia x intermedia	Deciduous
Mystery Gardenia	Gardenia augusta 'Mystery'	Evergreen
Noel's Grevillea	Grevillea noelii	Evergreen
Dwarf Burford Chinese holly	Ilex cornuta 'Burfordii Compacta'	Evergreen
Blue Pfitzer Juniper	Juniperus chinensis 'Pfitzerana Glauca'	Evergreen
Gaiety Girl New Zealand Tea tree	Leptospermum scoparium 'Gaiety Girl'	Evergreen
Texas Ranger	Leucophyllum frutescens	Evergreen
Japanese Privet	Ligustrum japonicum	Evergreen
Wax-Leaf Privet	Ligustrum texanum	Deciduous/Evergreen
Fringe Flower	Loropetalum chinense	Evergreen
Kosar-De Vos Magnolia	Magnolia Kosar-De Vos Hybrids	Deciduous
Lily Magnolia	Magnolia liliiflora	Deciduous
Star Magnolia	Magnolia stellata	Deciduous
Centennial Star Magnolia	Magnolia stellata 'Centennial'	Deciduous
Dawn Star Magnolia	Magnolia stellata 'Dawn'	Deciduous
Pink Star Magnolia	Magnolia stellata 'Rosea'	Deciduous
Waterlily Star Magnolia	Magnolia stellata 'Waterlily'	Deciduous
Oregon Grape	Mahonia aquifolium	Evergreen
Red Crabapple	Malus 'molten lava'	Deciduous

Pink Crabapple	Malus 'pink princess	Deciduous
Sargent Crabapple	Malus sargentii	Deciduous
Gray Honey Myrtle	Melaleuca icana	Evergreen
African Boxwood	Myrsine africana	Evergreen
Mrs. Roeding Oleander	Nerium oleander 'Mrs. Roeding'	Evergreen
Mock Orange	Philadelphus virginalis	Deciduous
Japanese Photinia	Photinia glabra	Evergreen
Variegated Mock Orange	Pittosporum tobira 'Variegata'	Evergreen
Dwarf Red Leaf Plum	Prunus cistena	Deciduous
California Sunset Pomegranate	Punica granatum 'California Sunset'	Deciduous
Eve Case Coffee Berry	Rhamnus californica 'Eve Case'	Evergreen
Bridal Wreath Spiraea	Spiraea x vanhouttei	Deciduous
Yew	Taxus media 'Brownii"	Deciduous
Hicks Yew	Thuja occidentalis 'Yellow Ribbon	Evergreen
Burkwood Viburnum	Viburnum burkwoodii	Deciduous/Evergreen
Fragrant Snowball Viburnum	Viburnum carlcephalum	Deciduous
Laurustinus Viburnum	Viburnum tinus	Evergreen
Weigela	Weigela florida	Deciduous
Coast Rosemary	Westringia fruticosa	Evergreen
Dwarf Xylosma	Xylosma congestum 'Compacta'	Evergreen
TREES		
Bird of Paradise	Caesalpinia gilliesii	Deciduous/Evergreen
Mexican Bird of Paradise	Caesalpinia mexicana	Evergreen
Multiflorus Cotonester	Cotoneaster multiflorus	Deciduous
Rubra Star Magnolia	Magnolia stellata 'Rubra'	Deciduous
Gray Honey Myrtle	Melaleuca icana	Evergreen
Fat Albert Spruce	Picea pungens 'Fat Albert'	Evergreen
Purple Pony Cherry Plum	Prunus cerasifera	Deciduous
Single Weeping Cherry	Prunus subhirtella 'Pendula'	Deciduous
Double Weeping Cherry	Prunus subhirtella 'Yae-shidare-higan'	Deciduous
Hicks Yew	Thuja occidentalis 'Yellow Ribbon	Evergreen
Laurustinus Viburnum	VIiburnum tinus	Evergreen

Guide for Encroachment

Attachment 3

Sample Agreement Document

JOINT USE AGREEMENT

SACRAMENTO MUNCIPAL UTILITY DISTRICT
AND
___[SECOND PARTY]___

This Joint Use Agreement ("Agreement") is made by and between _____ ("Project Owner") and the Sacramento Municipal Utility District ("SMUD") (each, a "party" and collectively, the "parties") as of the date set forth below.

RECITALS

A. Project Owner desires to develop the project ("Project") described in the project plan attached hereto as Exhibit A ("Project Plan").

B. The Project Plan provides for location of all or a portion of the Project within the boundaries of a [TRANSMISSION OR DISTRIBUITION] easement held by SMUD ("SMUD Easement"). The SMUD Easement was created by the instrument recorded at Book _____ and Page _____ of the Official Records of_____ County, attached hereto as Exhibit B ("Grant Document").

C. Project Owner desires SMUD's consent to locate the Project within the SMUD Easement, in accordance with the Project Plan, and SMUD is willing to grant such consent on the terms and subject to the conditions set forth in this Agreement.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

AGREEMENT

1. Consent to Joint Use. SMUD consents to Project Owner's location of the Project within the SMUD Easement as set forth in the Project Plan and subject to the terms and conditions of this Agreement ("Joint Use").

2. Burdened Parcel. This Agreement does not grant any right, privilege, or interest in the underlying land which is burdened by the SMUD Easement ("Burdened Parcel"). Project Owner shall obtain any/all necessary rights from the owner or owners of the Burdened Parcel and shall supply a copy of same to SMUD as a condition to the effectiveness of this Agreement. Consent shall not be required from Project Owner if Project Owner is an owner of the Burdened Parcel.

3. Superior Rights; Revocability; Unpermitted Activities. The Joint Use is subject to the rights of SMUD to fully utilize the SMUD Easement for the purposes set forth in the Grant Document. SMUD may, in its sole and absolute discretion, revoke its consent to the Joint Use, or require Project Owner to remove or relocate the Project. Should SMUD require any activities, whether permitted or unpermitted, to cease within the SMUD Easement, Project Owner shall immediately cease all such activities until SMUD is

satisfied adequate corrective measures have been implemented. Project Owner may only resume the activities upon receipt of a written Notice to Proceed executed by SMUD.

4. Conformance with Project Plan, Instructions. The Project, including without limitation the Project design, schedule and location, shall strictly conform to the Project Plan. No modifications shall be made to the Project Plan without SMUD's written consent. The Project shall be constructed and maintained in conformance with SMUD's written instructions for construction activities attached hereto as Exhibit C. SMUD shall, at all times, including without limitation during the construction or maintenance of the Project, have unfettered access to SMUD's facilities within the SMUD Easement.

5. Safety Measures.

    a. Project Owner shall abide by and comply with all applicable federal, state, and local laws, rules and regulations, including without limitation those related to hazardous substances and building and safety codes.

    b. Project Owner shall at all times conduct its activities related to the Project or on the SMUD Easement to meet or exceed OSHA and Cal-OSHA requirements. Project Owner shall ensure that all Project activities performed at or near the SMUD Easement conform with California Public Utilities Commission General Order No. 95.

    c. All equipment with a boom utilized within SMUD's Easement shall be equipped with a mechanical lockout to ensure that any boom extension does not exceed OSHA and Cal-OSHA safety clearances between SMUD's 230kV lines and animate or inanimate objects.

    d. No storage, staging, or mounding of materials shall be conducted in the SMUD Easement.

    e. Signs shall be posted on or near the SMUD Easement that state: "Caution: Overhead High-Voltage Transmission Lines."

    f. No vehicle or equipment fueling shall occur in the SMUD Easement.

    g. All grading within SMUD's Easement shall be conducted in a manner so that minimum horizontal and vertical clearances are maintained in accordance with CPUC General Order No. 95. Tower footings shall not be covered with earth, dirt, rubbish, or other materials at any time.

    h. During Project construction and maintenance, SMUD line equipment vehicles shall be provided access at all times to SMUD's transmission structures and other facilities. Vehicles parked within said area shall be on wheels and capable of immediate removal, and Project Owner agrees to move any of it or its contractor's vehicles from said area upon receiving 24-hours notice from SMUD. SMUD further reserves the right to remove all vehicles from the area in the event of non-removal pursuant to 24-hour notice, or as necessary to restore electricity, or during an emergency.

    i. SMUD's towers and poles shall be protected from vehicular or other damage. SMUD shall be notified immediately if SMUD facilities become damaged.

Project Owner will be responsible for any and all damage to SMUD facilities caused as a result of the Project.

j. A copy of this Agreement shall be posted at a conspicuous location at the Project site during all hours of construction. Project Owner shall ensure each of its contractors (each a "Contractor") and Contractor's subcontractors is aware of and abides by the conditions set forth in this Agreement, including without limitation the provisions regarding Hazardous Substances set forth below.

6. Hazardous Substances.

a. Contractor and its subcontractor shall perform all work in accordance with all federal, state and local laws, rules, and regulations pertaining to hazardous waste management including but not limited to the Resources Conservation and Recovery Act (RCRA) of 1976, 42 USC Section 6901 and following, Title 40 Code of Federal Regulations, applicable provisions relating to hazardous waste contained in Division 20 (commencing with Chapter 6 5) of the California Health & Safety Code, and Title 22 California Code of Regulations.

b. Contractor and its subcontractors shall promptly correct and remedy any discharge of hazardous materials or hazardous wastes occurring on the jobsite as a result of or in connection with its work. Such cleanup shall be performed in accordance with all applicable federal, state and local laws, rules, regulations and/or ordinances. Contractor shall notify SMUD and any governmental regulatory agency of competent jurisdiction as may be required by any applicable federal, state and local law, rule, regulation and/or ordinance. Contractor shall begin such cleanup within 24 hours of notification and shall complete the corrections within 10 calendar days. If correction cannot be commenced within 24 hours of notification or completed within 10 calendar days, Contractor shall immediately demonstrate to the satisfaction of SMUD the reasons therefore, otherwise SMUD has the right to proceed with the cleanup itself or through a third party and Contractor agrees to reimburse SMUD promptly for costs it incurs to do so. Such cleanup shall restore the jobsite to its condition prior to the discharge.

c. In the event hazardous waste or spill residue is generated as a result of the work at the jobsite by Contractor or its subcontractors, Contractor or its subcontractors shall arrange for proper transportation and disposal of these materials at their own expense. All such arrangements shall be approved by SMUD. Any interim storage of these materials prior to their prompt removal from the jobsite shall be approved by SMUD, and shall take place only in areas approved by SMUD. Surplus hazardous substances and empty containers shall be removed from the jobsite as soon as they are no longer needed for the work.

7. Notices. All notices regarding this project must be sent to the individual(s) listed below:

[ADD]

All notifications must be submitted a minimum of 3 days prior to the commencement of any Project construction or maintenance work contiguous to or within SMUD's Easement to schedule inspection by SMUD. Inspections should be scheduled by telephoning SMUD at (916) 732-5905 or by written notice at the above address.

8. Indemnification. Project Owner shall indemnify and hold harmless SMUD, its directors, officers, agents, and employees against all claims, loss, damage, expense (including but not limited to reasonable attorneys' fees), and liability asserted or incurred by other parties on account of personal injury, death, or property damage arising out of Project Owner's, its agents', contractors', or subcontractors' use of the SMUD Easement arising out of or in any way connected to the performance of this Joint Use Agreement caused by the acts, omissions, intentional or negligent acts, whether active or passive, of Project Owner's agents, employees, contractors, subcontractors and suppliers and excepting only such loss, damage, or liability as may be caused by the intentional acts or negligence directly attributable to SMUD.

9. Insurance. Project Owner agrees to maintain, at its sole cost, so long as this Agreement remains in effect, the following insurance coverage, or self-insurance as allowed pursuant to California Statute: (a) Commercial General Liability Insurance with per occurrence limits of $1,000,000/general aggregate limits of $2,000,000; (b) Business Automobile Liability Insurance with limits of $1,000,000 each accident; (c) Workers' Compensation Insurance and Employer's Liability Insurance with limits of $1,000,000 each accident/$1,000,000 bodily injury by disease/$1,000,000 each employee. All Insurance or self-insurance required herein to be maintained by Project Owner for the duration of this Easement Agreement shall: (a) with the exception of Workers' Compensation, name SMUD and its officers, directors, and employees as additional insureds for both ongoing and completed operations to the extent of Project Owner's indemnity obligations in Section 17; (b) Include a waiver of subrogation in favor of SMUD; and (c) be primary as respects any insurance or self-insurance of SMUD to the extent of Project Owner's obligations set forth in this Agreement. As evidence of coverage, Project Owner shall provide a certificate of insurance with supporting endorsements or, if applicable, a letter of self-insurance to SMUD in accordance with the notice provisions of this Agreement.

10. General Provisions

    a. Amendment. No amendment, modification or supplement to this Agreement shall be binding on any of the parties unless it is in writing and signed by the parties in interest at the time of the modification.

    b. Assignment; Successor and Assigns. Project Owner shall not assign any rights or any obligations under this Agreement without SMUD's prior written consent. Any assignment in violation of the foregoing shall be deemed null and void. Subject to the limits on assignment stated above, this Agreement will inure to the benefit of, be binding upon, and be enforceable against, each of the parties hereto and their respective successors and assigns.

    c. Choice of Law. This Agreement shall be governed, construed and interpreted solely by and under the laws of the State of California without regard to conflict of laws provisions.

    d. Entire Agreement/Integration. This Agreement and all Schedules, Appendixes, and Exhibits hereto, as well as agreements and other documents referred to in this

Agreement constitute the entire agreement between the parties with regard to the subject matter hereof and thereof. This Agreement supersedes all previous agreements between or among the parties. There are no agreements, representations or warranties between or among the parties other than those set forth in this Agreement or the documents and agreements referred to in this Agreement.

e. Third Party Beneficiaries/Parties in Interest. This Agreement and all conditions and provisions hereof are for the sole and exclusive benefit of the parties hereto and their respective successors and assigns and are not intended for the benefit of any other person.

f. Waiver. No waiver of any of the provisions of this Agreement shall be deemed, or shall constitute, a wavier of any other provisions, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

g. Authority. Each of the undersigned represent and warrant that he or she has the legal authority to execute this Agreement on behalf of his or her respective party.

The parties hereto execute this Agreement effective as of :_____, 20____

[ADD SIG BLOCKS]

[ADD EXHIBIT PLACE HOLDERS]