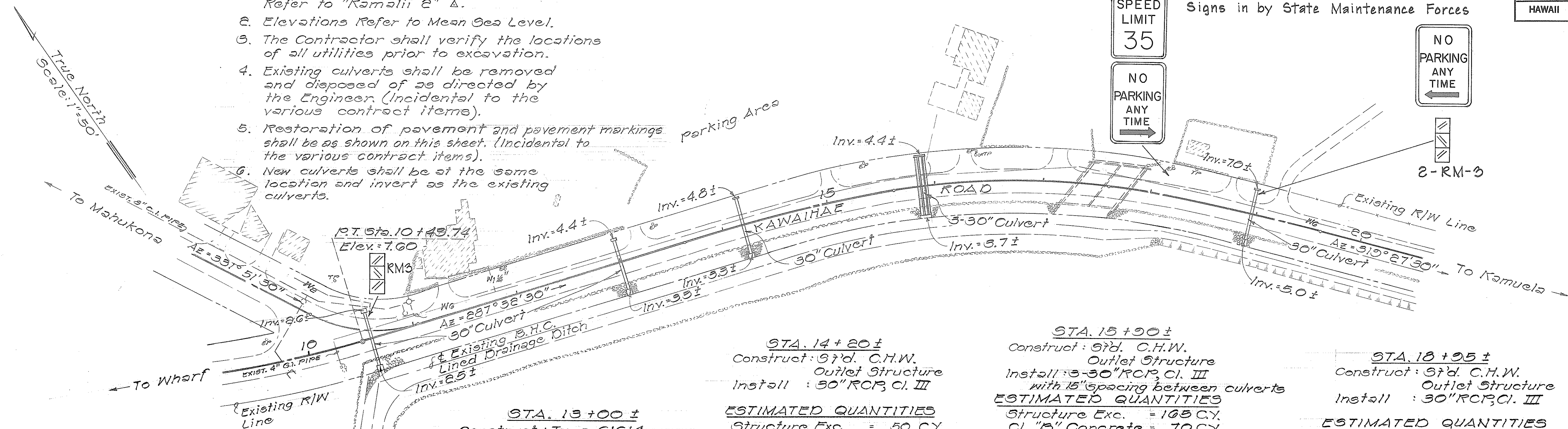


**NOTE:**

1. Origin of Azimuths and Coordinates Refer to "Kamalii 2" A.
2. Elevations Refer to Mean Sea Level.
3. The Contractor shall verify the locations of all utilities prior to excavation.
4. Existing culverts shall be removed and disposed of as directed by the Engineer. (Incidental to the various contract items).
5. Restoration of pavement and pavement markings shall be as shown on this sheet. (Incidental to the various contract items).
6. New culverts shall be at the same location and invert as the existing culverts.



**STA. 10+60±**  
Construct: Type GIG14  
Grated Drop Intake  
Outlet Structure  
Install: 30" RCP, Cl. III  
**ESTIMATED QUANTITIES**  
Structure Exc. = 55 C.Y.  
Cl. "B" Concrete = 35 C.Y.  
Reinf. Steel = 30 Lb.  
GRP = 1 C.Y.  
30" Culvert = 52 L.F.  
Type GIG14 Steel  
Frame & Grate = 1 Ea.  
Bed Course Mat'l = 3 C.Y.

**STA. 13+00±**  
Construct: Type GIG14  
Grated Drop Intake  
Outlet Structure  
Install: 30" RCP, Cl. III  
**ESTIMATED QUANTITIES**  
Structure Exc. = 50 C.Y.  
Cl. "B" Concrete = 35 C.Y.  
Reinf. Steel = 30 Lb.  
GRP = 1 C.Y.  
30" Culvert = 48 L.F.  
Type GIG14 Steel  
Frame & Grate = 1 Ea.  
Bed Course Mat'l = 7 C.Y.

**STA. 14+20±**  
Construct: 3rd. C.H.W.  
Outlet Structure  
Install: 30" RCP, Cl. III  
**ESTIMATED QUANTITIES**  
Structure Exc. = 50 C.Y.  
Cl. "B" Concrete = 4 C.Y.  
GRP = 1 C.Y.  
Reinf. Steel = 51 Lb.  
30" Culvert = 50 L.F.  
Bed Course Mat'l = 7 C.Y.

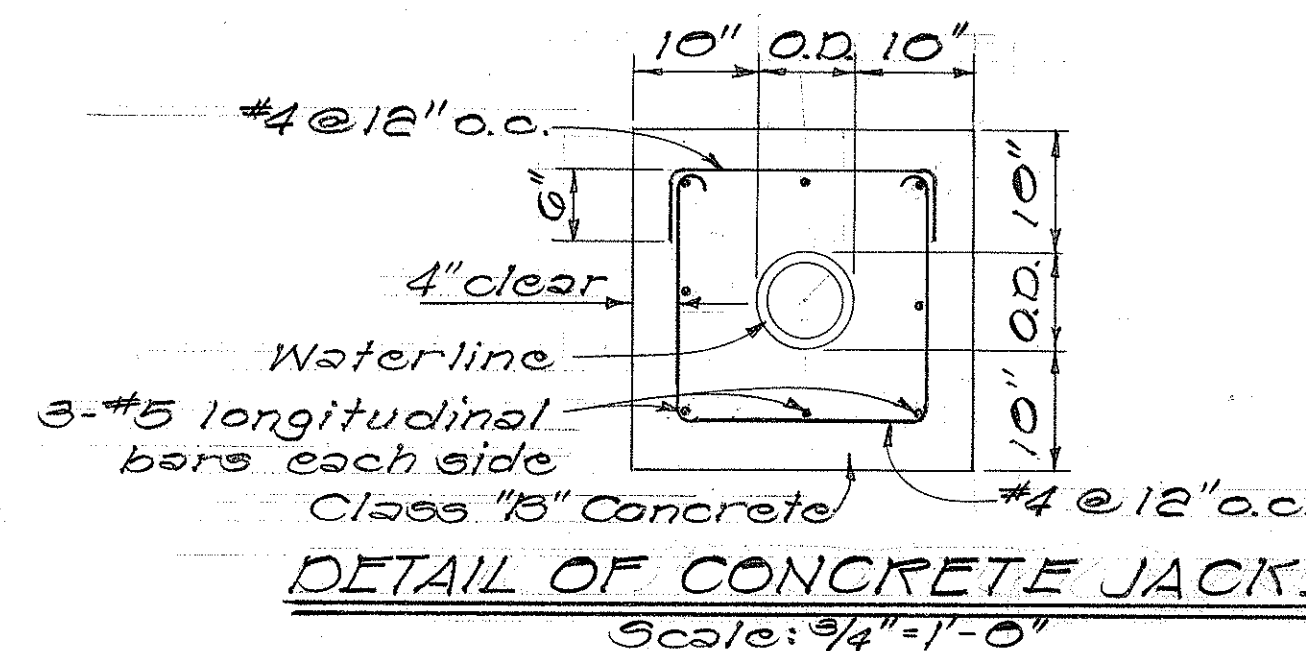
**STA. 15+90±**  
Construct: 3rd. C.H.W.  
Outlet Structure  
Install: 30" RCP, Cl. III  
with 15' spacing between culverts  
**ESTIMATED QUANTITIES**  
Structure Exc. = 105 C.Y.  
Cl. "B" Concrete = 70 C.Y.  
CRM = 2 C.Y.  
GRP = 2 C.Y.  
Reinf. Steel = 150 Lb.  
30" Culvert = 162 L.F.  
Bed Course Mat'l = 45 C.Y.

**STA. 18+95±**  
Construct: 3rd. C.H.W.  
Outlet Structure  
Install: 30" RCP, Cl. III  
**ESTIMATED QUANTITIES**  
Structure Exc. = 40 C.Y.  
Cl. "B" Concrete = 35 C.Y.  
GRP = 1 C.Y.  
Reinf. Steel = 51 Lb.  
30" Culvert = 48 L.F.  
Bed Course Mat'l = 7 C.Y.

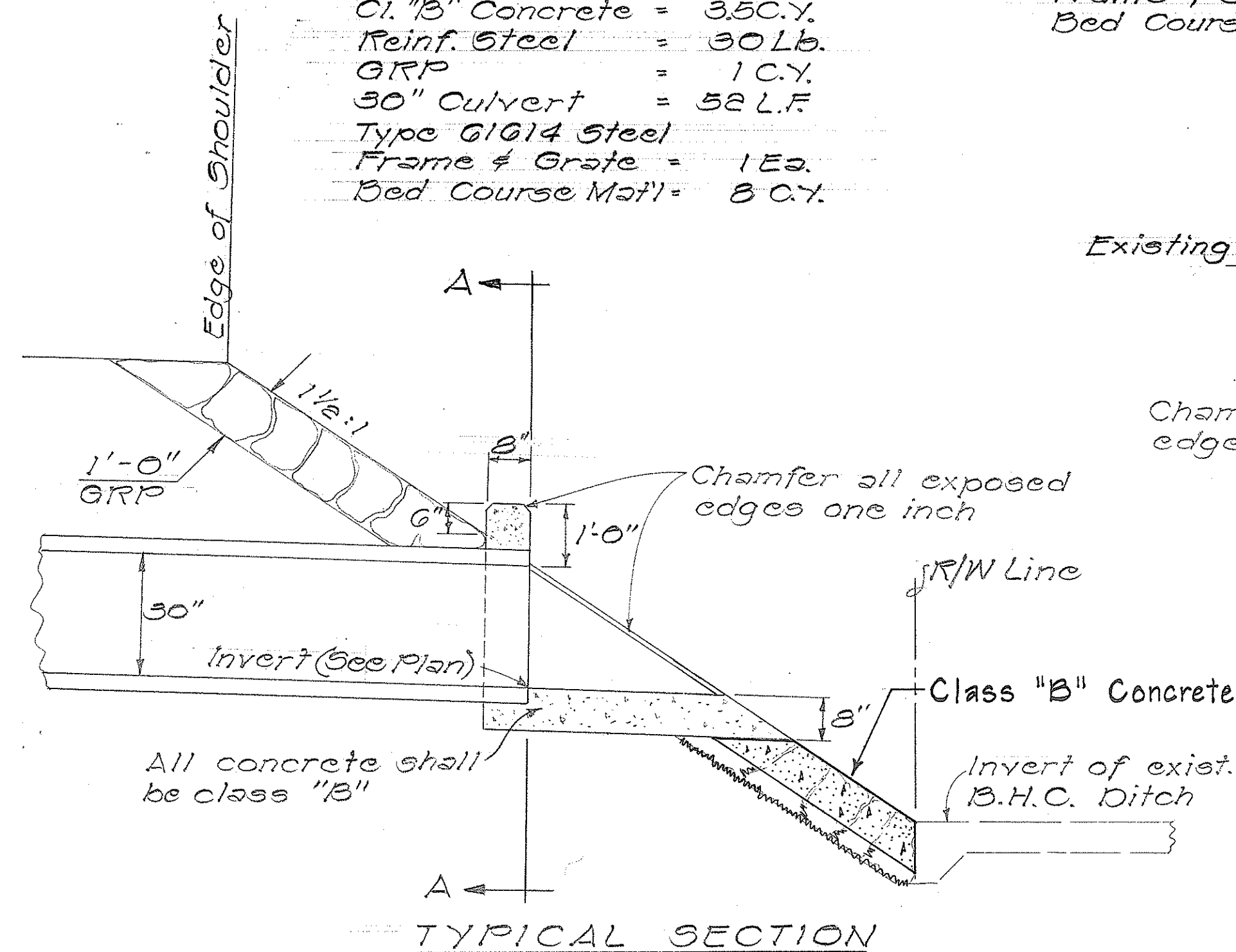
**Water Notes:**

1. The Contractor shall take extra precautions not to disturb any existing waterlines.
2. Any damage done to the existing waterlines shall be the responsibility of the Contractor.
3. Any work done by the Department of Water Supply (D.W.S.), County of Hawaii shall be paid for by the Contractor.
4. Waterlines shall be concrete jacketed if the vertical clearance between the pipe and the culvert is less than 1.0'. Concrete jackets shall extend 1.5' beyond each side of the culvert. Payment for concrete jackets shall be considered incidental to the various contract items.
5. Any work done to the existing waterline shall be done in accordance to the D.W.S. "Standards for Water System" dated March 1965 as amended.

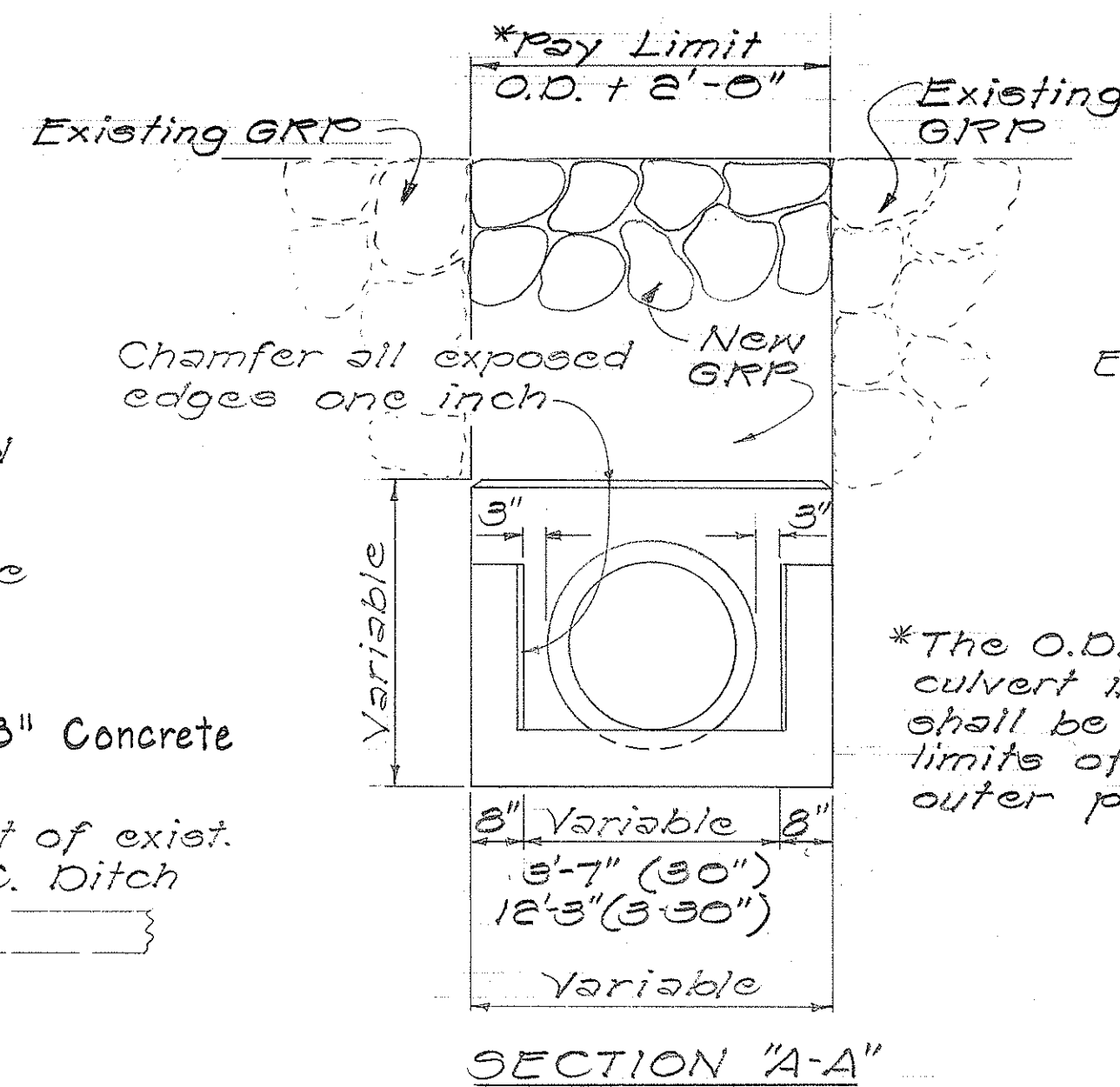
**PLAN**



**DETAIL OF CONCRETE JACKET**  
Scale: 3/4"=1'-0"

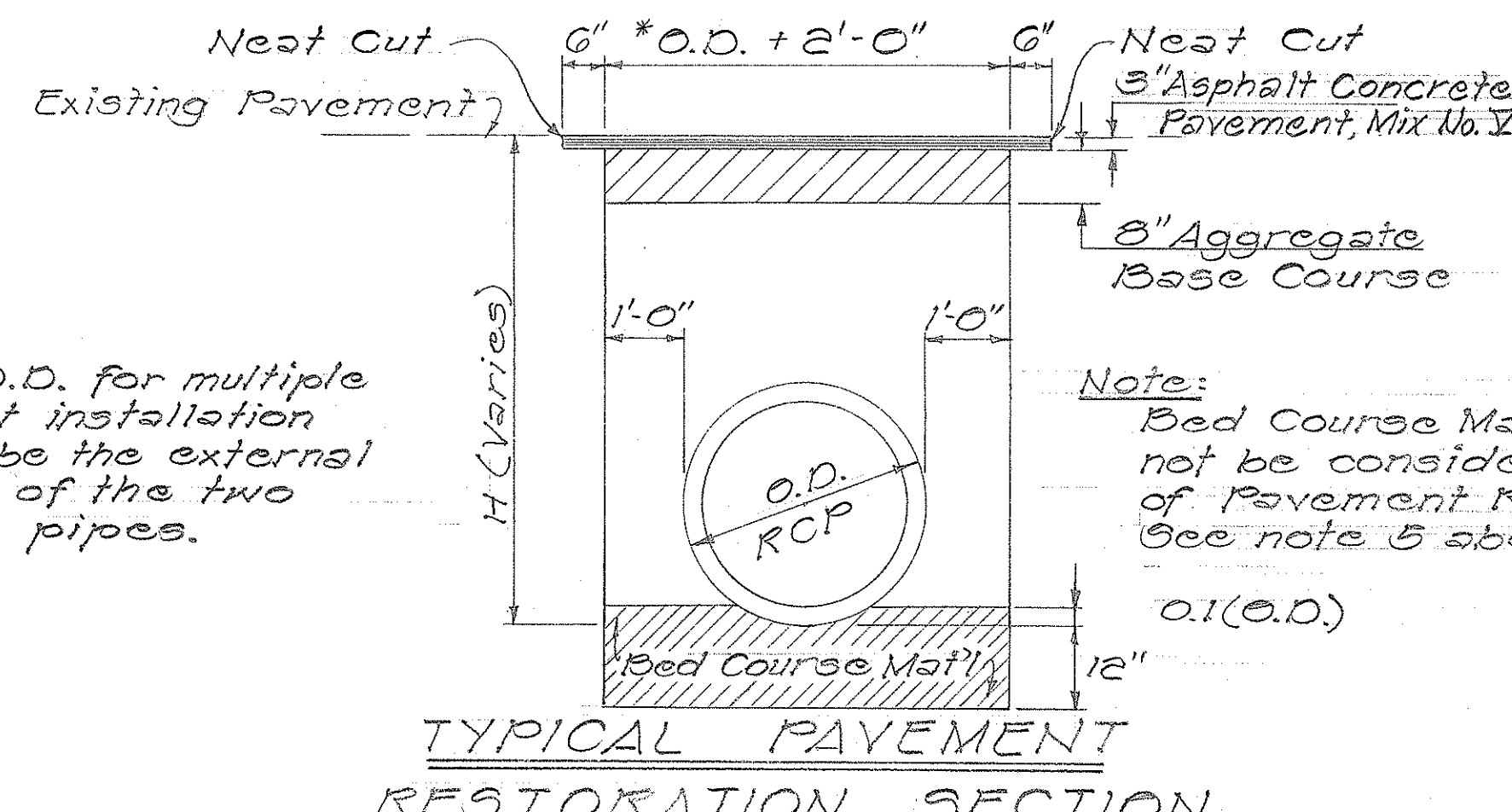


**TYPICAL SECTION**



**SECTION "A-A"**

\*The O.D. for multiple culvert installation shall be the external limits of the two outer pipes.

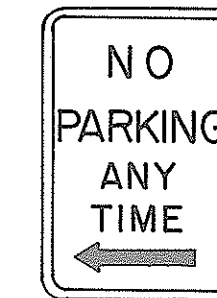
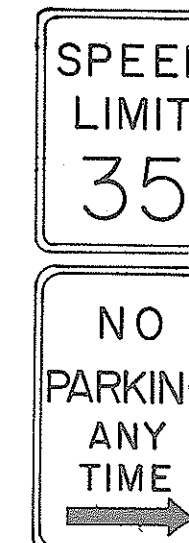


**TYPICAL PAVEMENT RESTORATION SECTION**  
Scale: 1/2"=1'-0"

**DETAIL OF HEADWALL AT OUTLETS BETWEEN STA. 10+60± & 18+95±**  
Scale: 1/2"=1'-0"

| FED. ROAD DIST. NO. | STATE | PROJ. NO.  | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 270A-01-76 | 1976        | 2         | 5            |

Signs in by State Maintenance Forces



2-RM-3

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| TRACED BY         |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| No.               |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**DRAINAGE PLAN & DETAILS**  
DRAINAGE IMPROVEMENTS  
ON  
KAWAIIHAE ROAD  
(Vicinity of Kawaihae Harbor)  
Proj. No. 270A-01-76  
Scale: As Noted Date: Dec. 1975  
SHEET NO. 2 OF 5 SHEETS