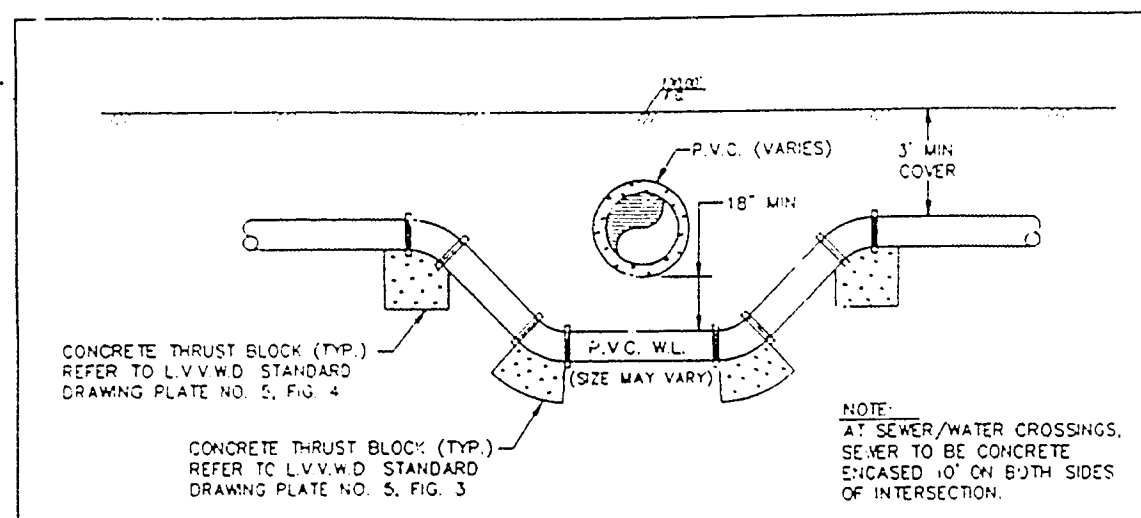




WATERLINE CROSSING DETAIL  
NOT TO SCALE

"Where the water line is less than 18 inches over the sewer line, where the water line is under the sewer line, and where the horizontal separation, as required by the Water Supply Regulations, cannot be maintained because of physical obstructions (buildings), the water line shall be protected by construction of the sewer line with the following:

1. Extra heavy cast iron pipe;
2. Water supply quality materials; or
3. Encasement with four inches, minimum, of concrete sloving with water supply quality pipe.

Each of these provisions shall also be extended for other than 90 degree crossings to the point at which the ten foot separation between the water and sewer line is achieved (10/sine of crossing angle).

**Call before you Dig.**  
1-800-227-2600  
UNDERGROUND SERVICE UNIT

#### NOTE

ALL UTILITIES SHOWN ARE BELIEVED TO BE ACCURATELY LOCATED, BUT THE ACCURACY AND COMPLETENESS OF UTILITY INFORMATION IS NOT GUARANTEED. FOR EXACT LOCATION OF ANY UTILITY SEE APPROPRIATE UTILITY OR GOVERNMENTAL AGENCY.

#### ESTIMATE OF QUANTITIES

##### PUBLIC

|   |                |            |
|---|----------------|------------|
| ① | 10" SEWER LINE | 550 +/- LF |
| ② | 48" MANHOLE    | 1 EA       |

##### PRIVATE

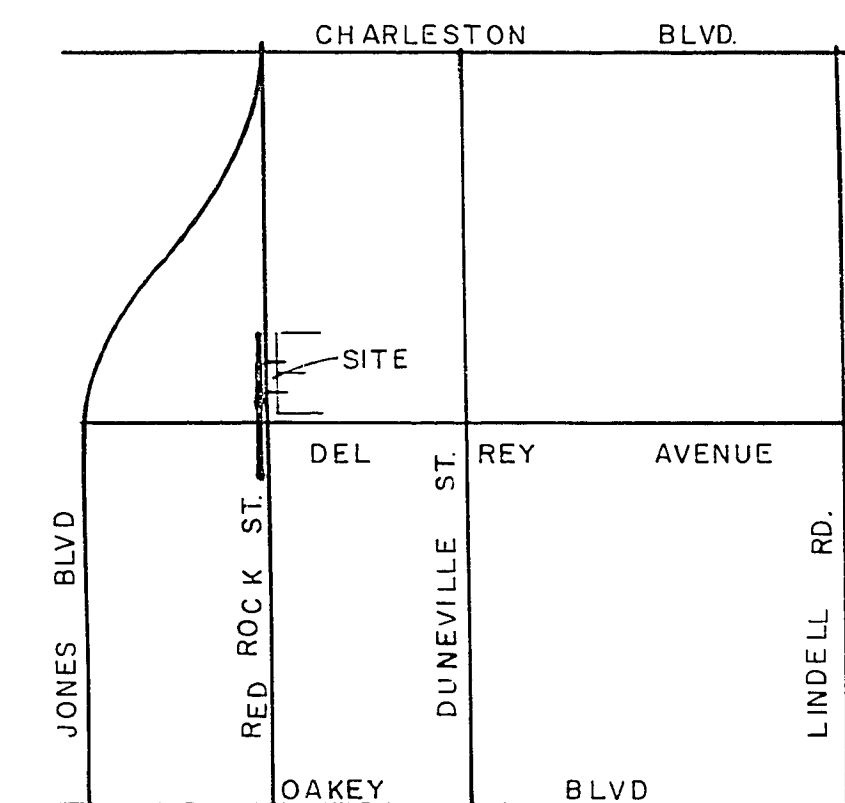
|   |                  |        |
|---|------------------|--------|
| ① | 10" SEWER LINE   | 180 LF |
| ② | 48" MANHOLE      | 1 EA   |
| ③ | 4" SEWER LATERAL | 100 LF |

##### BENCHMARK

NE COR. CHARLESTON BLVD. & JONES BLVD.  
CLV # 06036C2 ELEV. 2288.035

##### CLV SEWER NOTES

1. ALL SANITARY SEWER INSTALLATIONS SHALL CONFORM TO THE STANDARD DETAILS AND SPECIFICATIONS OF THE CITY OF LAS VEGAS, AND SHALL ALSO CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OF OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, LATEST EDITION, UNLESS OTHERWISE NOTED.
2. CHISEL "S" OR "C" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER CURB.
3. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, AND INSTALLED WITH SAND BEDDING AND BACKFILL OR TYPE II GRAVEL.
4. ALL MANHOLES IN PAVED STREETS 80 FT. R/W AND LARGER, SHALL HAVE CONCRETE COLLARS.
5. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO 12 IN. DIA. SIZE. CONNECTIONS TO 15 IN. OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES.
6. A SEWER MAIN CROSSING OVER A WATER MAIN ON LESS THAN 10 IN. UNDER A WATER MAIN MUST BE REINFORCED CONCRETE ENCASED PIPE FOR A DISTANCE OF NOT LESS THAN TEN FEET (10') ON EACH SIDE OF THE CENTERLINE OF THE WATER MAIN.

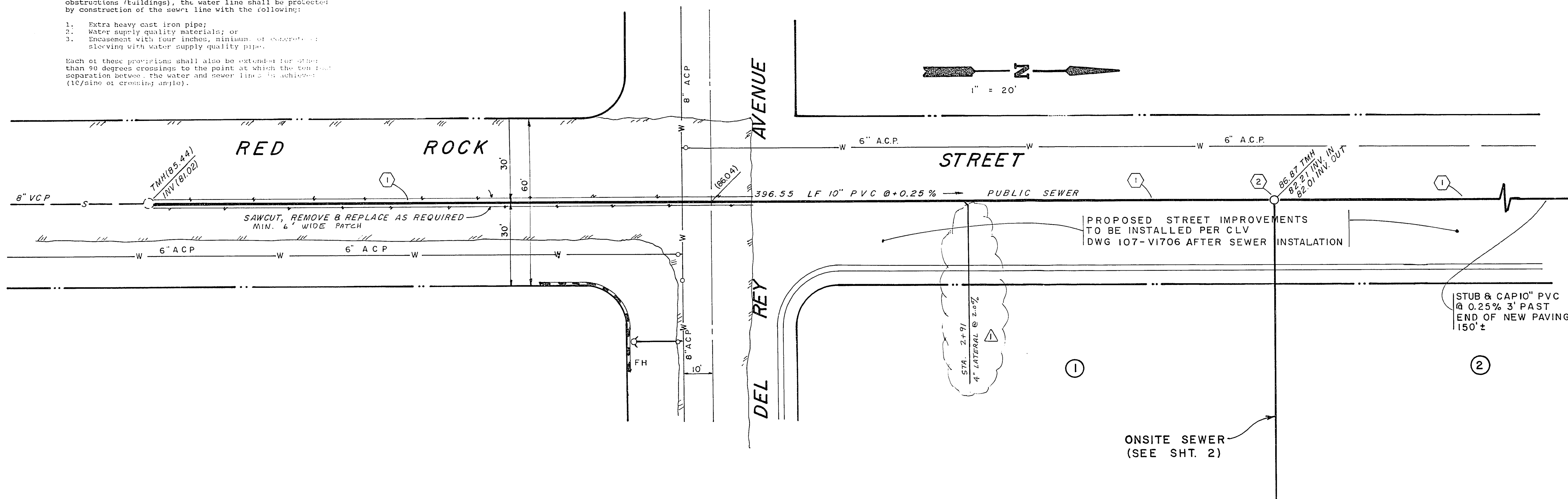


VICINITY MAP

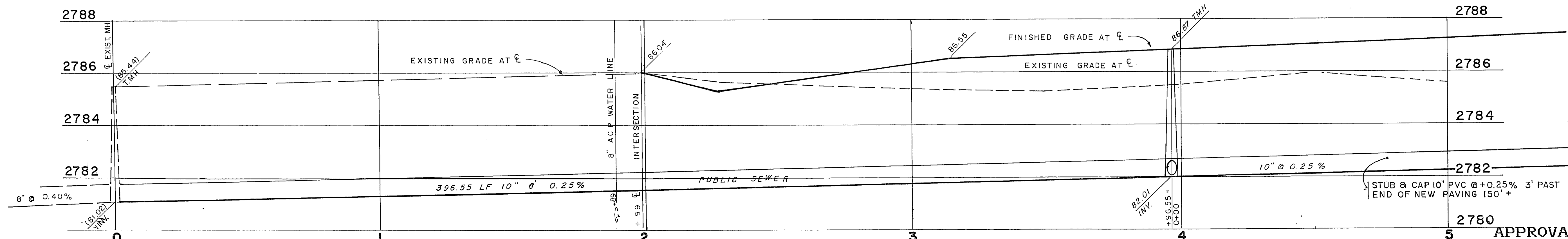
##### CLV GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE DONE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OF OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST EDITION, BY THE CLV, AND THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE.
2. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY LINES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE DRAWINGS. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS ARE NOT SHOWN ON THE PLANS.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED SATISFACTORY TO THE OWNER AT THE EXPENSE OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL NOT BACKFILL ANY TRENCHES IN WHICH WATERLINES HAVE BEEN UNCOVERED UNTIL THE WATERLINES HAVE BEEN INSPECTED BY THE LAS VEGAS VALLEY WATER DISTRICT. THE WATER DISTRICT SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF CONSTRUCTION IN THE VICINITY OF THE WATER LINES.
5. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY ALTERATIONS SHALL HAVE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
6. TYPE V CURB SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE DESIGNED FOR A 2.5 SHOCK INDEX WITH A MAXIMUM WATER/CEMENT RATIO OF 0.45 (OR AS DESIGNATED BY THE SOILS ENGINEER). MIX DESIGN TO BE APPROVED BY THE QUALITY CONTROL DIVISION PRIOR TO USE ON THE PROJECT.
7. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL OVERHEAD INTERFERENCE WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD OR UNDERGROUND POWER AND/OR TELEPHONE FACILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COSTS AND LIABILITY IN CONNECTION THEREWITH.
8. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS FOR THIS CONSTRUCTION.
9. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRACTED TYPE CURB.
10. AC PAVEMENT TO BE 1/2" ABOVE TOP OF ALL OUTER & VALLEY CUTTER AFTER COMPLETION.
11. APPLY FUG SEAL ONLY AFTER ALL CORRECTIONS AND ADJUSTMENTS HAVE BEEN MADE.
12. CURB AND CUTTER WITH A GRADE OF LESS THAN FOUR TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
13. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
14. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF TRANSITIONS TO BE SHOWN ON PLANS, OR AS DESIGNATED IN THE FIELD BY A CITY INSPECTOR.
15. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY THE SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER.
16. EXACT LOCATION OF ALL SLOUT LINES MAY BE DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS INSPECTOR IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES MODIFICATION.
17. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.E.S. STATUTE NO. 625-550.

DEVIATIONS FROM STDS. - NONE



ONSITE SEWER  
(SEE SHT. 2)



NOTE  
EXACT DEPTH OF WATER LINE UNKNOWN.  
SEE NOTE & WATER CROSSING DETAIL.  
IF WATER LINE MUST BE LOWERED,  
LVVWD APPROVAL REQUIRED.

HORZ 1" = 20'  
SCALE VERT. 1" = 2'

RED ROCK STREET  
SEWER LINE DESIGN  
FOR  
MICHAEL D. HALVERSON

**EMS ENGINEERING**  
5160 S. EASTERN AVE. - SUITE #F  
LAS VEGAS - NEVADA 89119  
EST. 1983 (702) 739-7211

*[Signature]*  
C.L.V. ENGINEER 8-8-91  
DATE



#### APPROVALS

| DATE    | REVISIONS                                | APPVD              |
|---------|------------------------------------------|--------------------|
| 8-20-91 | CHANGED DEPTH & ALIGNMENT, ADDED SHEET 2 | <i>[Signature]</i> |
| 9-17-91 | AS-BUILT LATERAL LOCATIONS               | <i>[Signature]</i> |

|             |                                 |              |
|-------------|---------------------------------|--------------|
| SCALE       | HORZ: 1" = 20'<br>VERT. 1" = 2' | DRAWING NO.  |
| PROJECT NO. |                                 |              |
| FIELD BOOK  |                                 | SHEET 1 OF 2 |

307V-697

25-1-11