

|               |                         |            |
|---------------|-------------------------|------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY _____ | DATE _____ |
| NOTE BOOK     | DRAWN BY _____          | _____      |
|               | TRACED BY _____         | _____      |
|               | DISCUSSED BY _____      | _____      |
|               | QUANTIFIED BY _____     | _____      |
| No. _____     | CHECKED BY _____        | _____      |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

LANDSCAPE IRRIGATION AND  
PLANTING PLAN

VINEYARD - PUNCHBOWL  
TRAFFIC IMPROVEMENT PROJECT

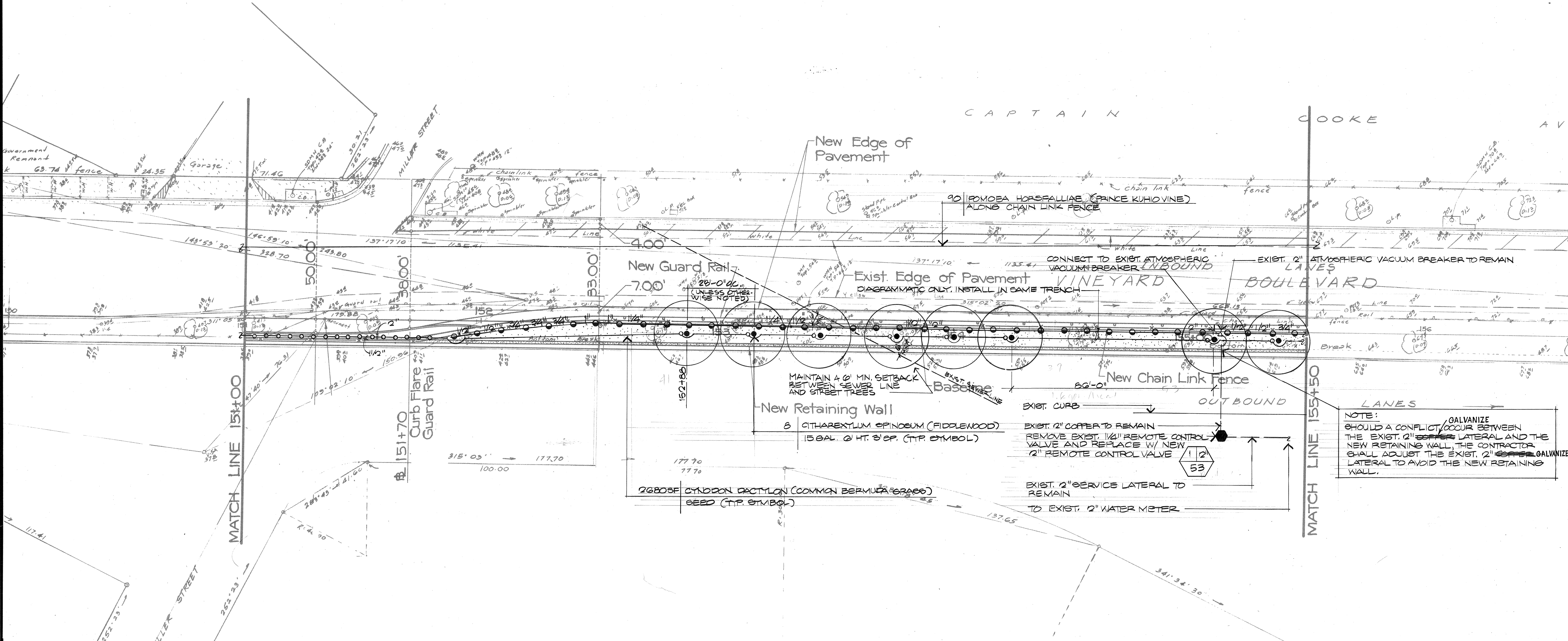
PROJECT NO. 98A-01-89

SCALE: 1" = 20'      DATE: APRIL 1990

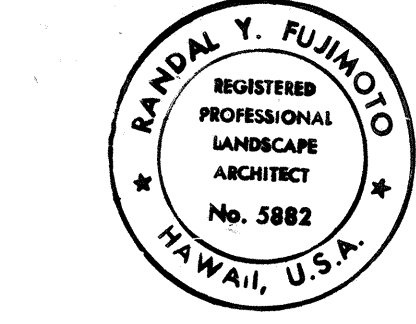
SHEET NO. 1 OF 5 SHEETS



| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 98A-01-89 | 1991        | 21        | 28           |



|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| NOTED BOOK    |      |
| NO.           |      |

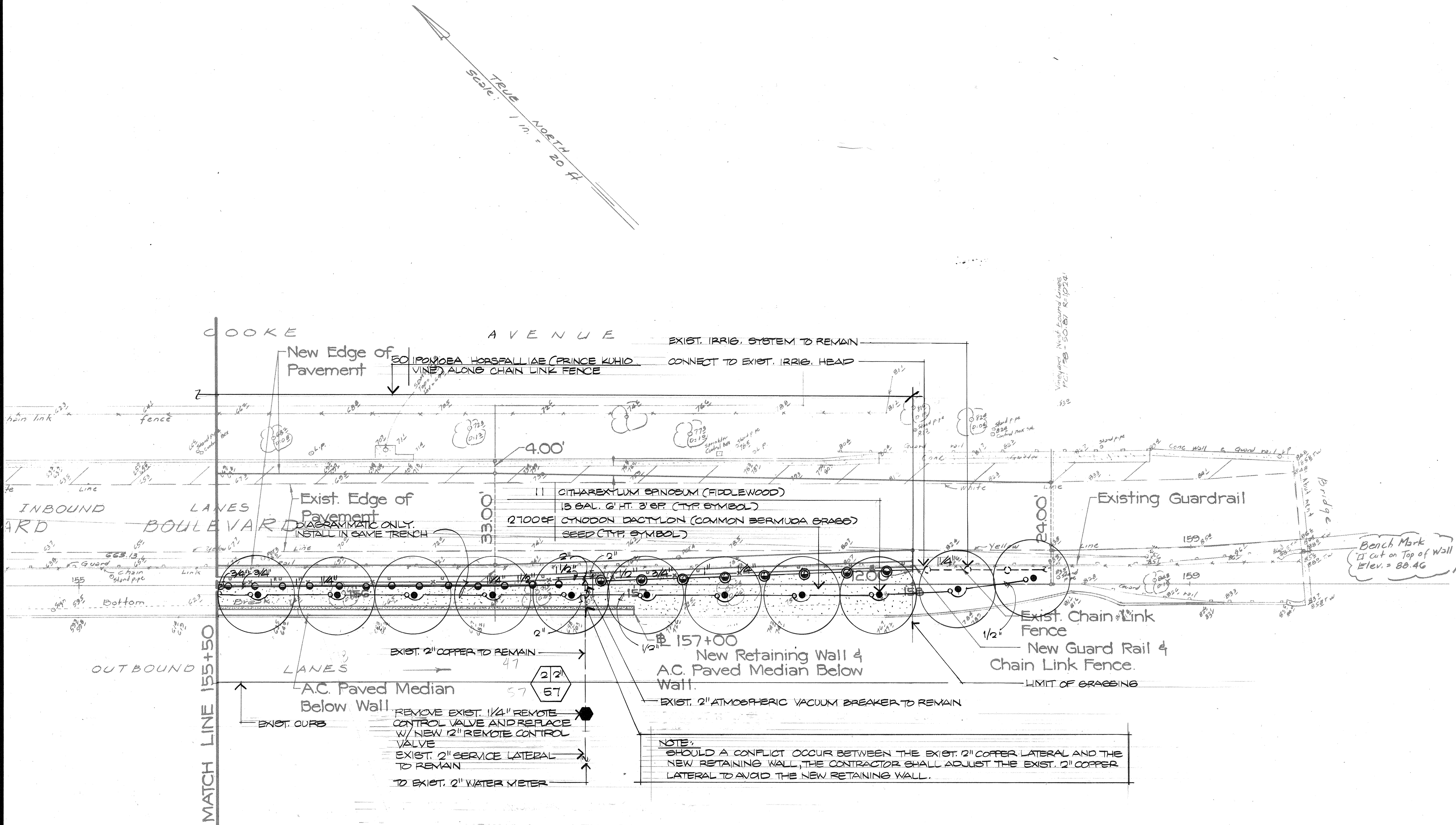


*Randal Y. Fujimoto*  
 THIS WORK WAS PREPARED  
 BY ME OR UNDER MY  
 SUPERVISION

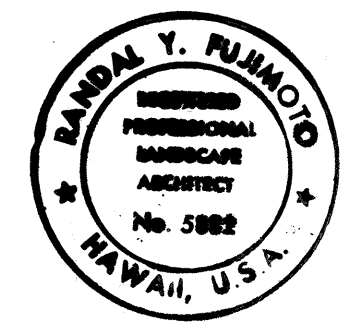
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**LANDSCAPE IRRIGATION AND  
 PLANTING PLAN**  
 VINEYARD - PUNCHBOWL  
 TRAFFIC IMPROVEMENT PROJECT  
 PROJECT NO. 98A-01-89  
 SCALE: 1" = 20'  
 DATE: APRIL 1990  
 SHEET No. 2 OF 5 SHEETS



| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 98A-01-89 | 1991        | 22        | 28           |



|             |       |
|-------------|-------|
| DATE        | _____ |
| DESIGNED BY | _____ |
| CHECKED BY  | _____ |
| NOTED BY    | _____ |
| DATE        | _____ |



*Randy Fung*  
 THIS WORK WAS PREPARED  
 BY ME OR UNDER MY  
 SUPERVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

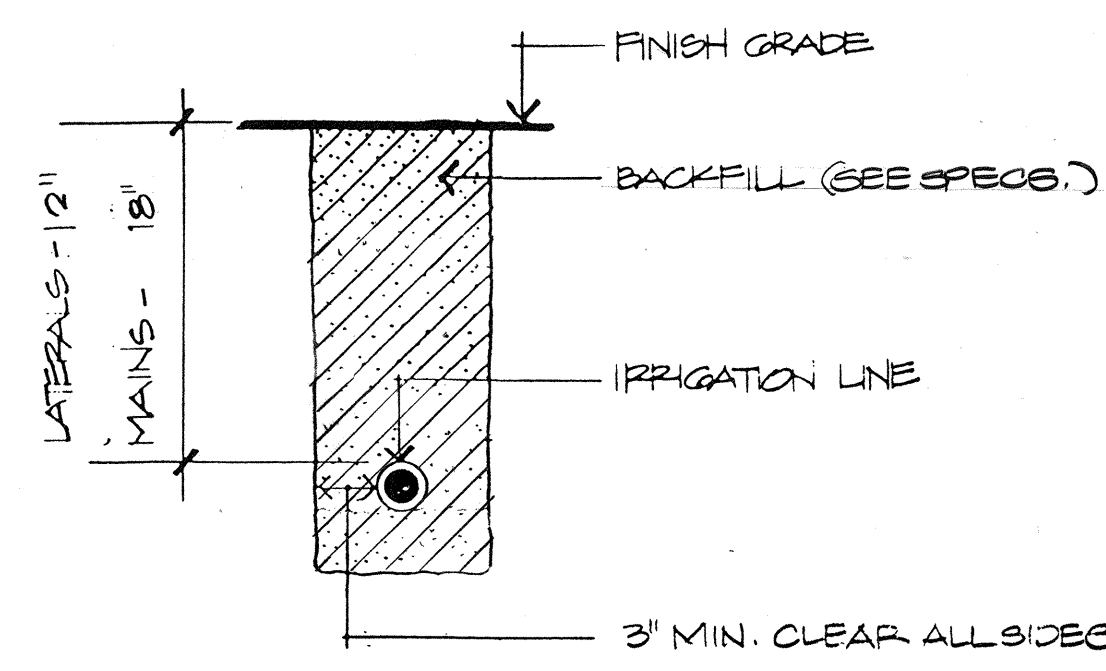
LANDSCAPE IRRIGATION AND  
PLANTING PLAN

VINEYARD - PUNCHBOWL  
TRAFFIC IMPROVEMENT PROJECT  
PROJECT NO. 98A-01-89

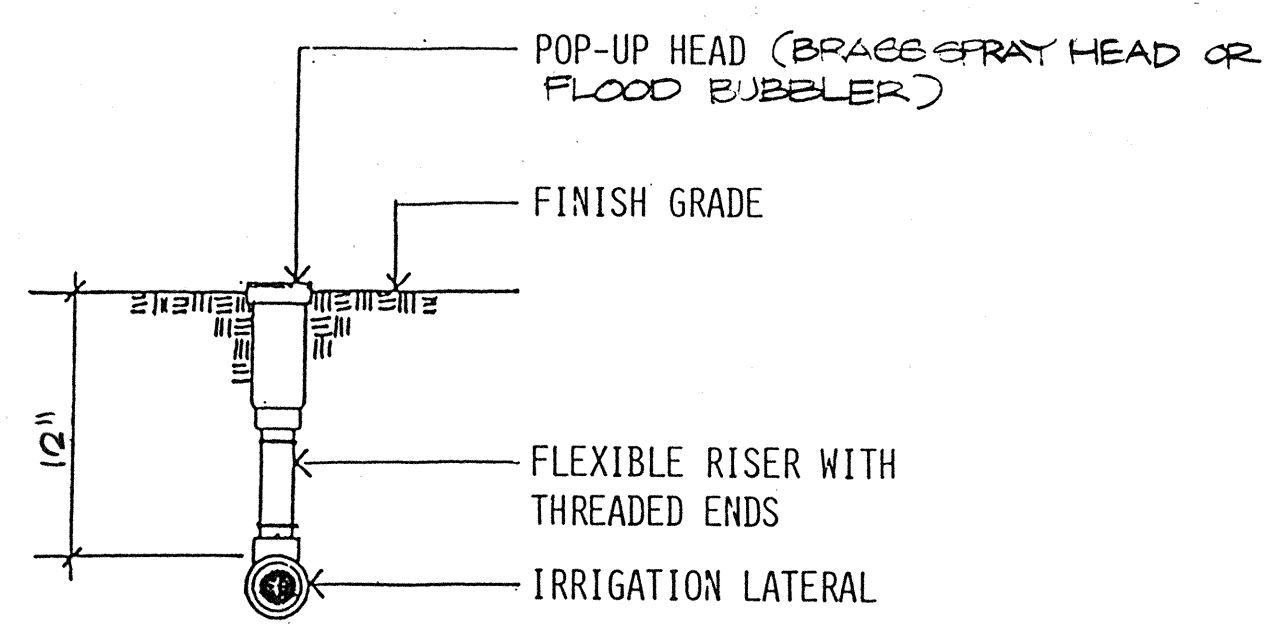
SCALE: 1" = 20'  
DATE: APRIL 1990

SHEET NO. 3 OF 5 SHEETS





**TRENCHING**  
NO SCALE



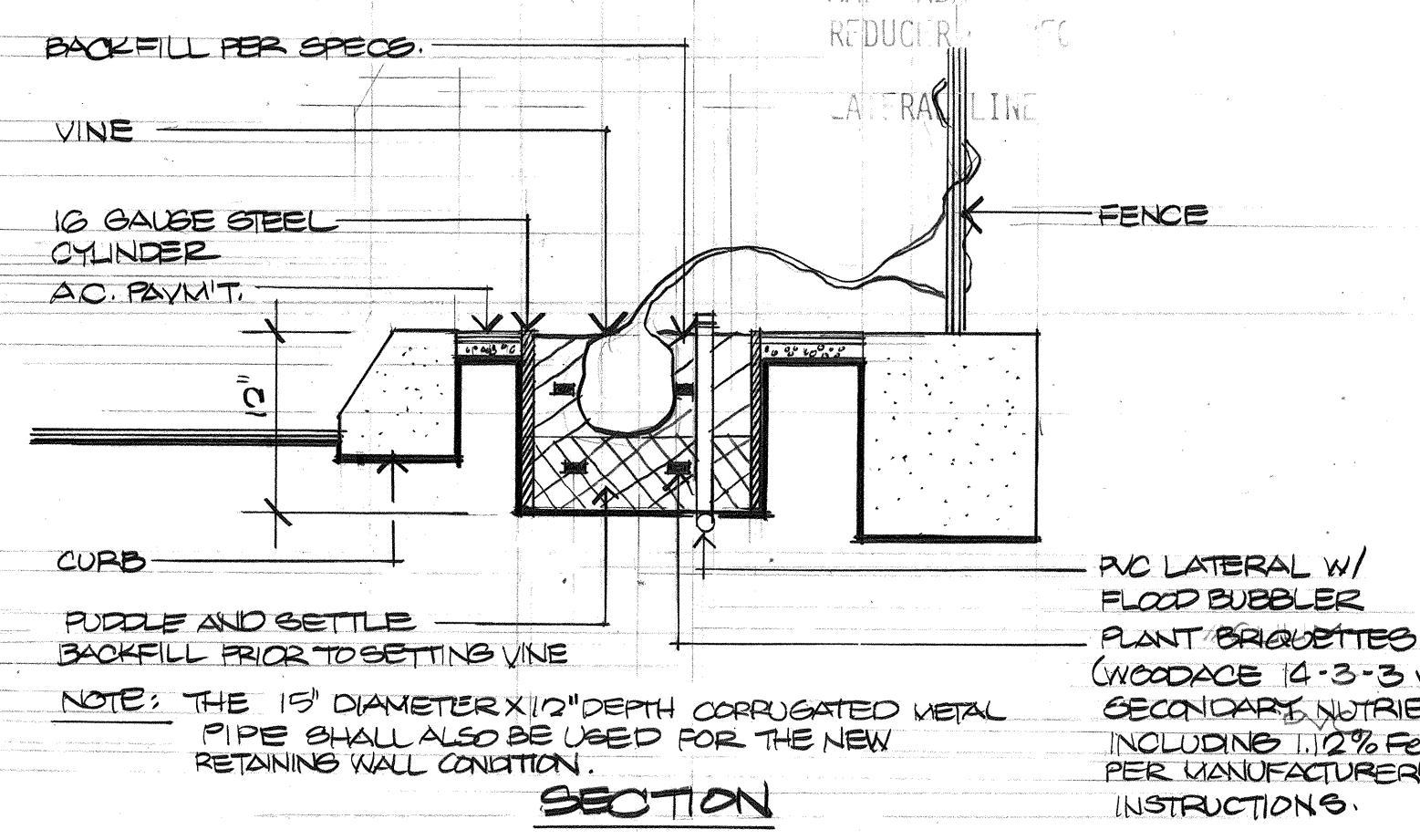
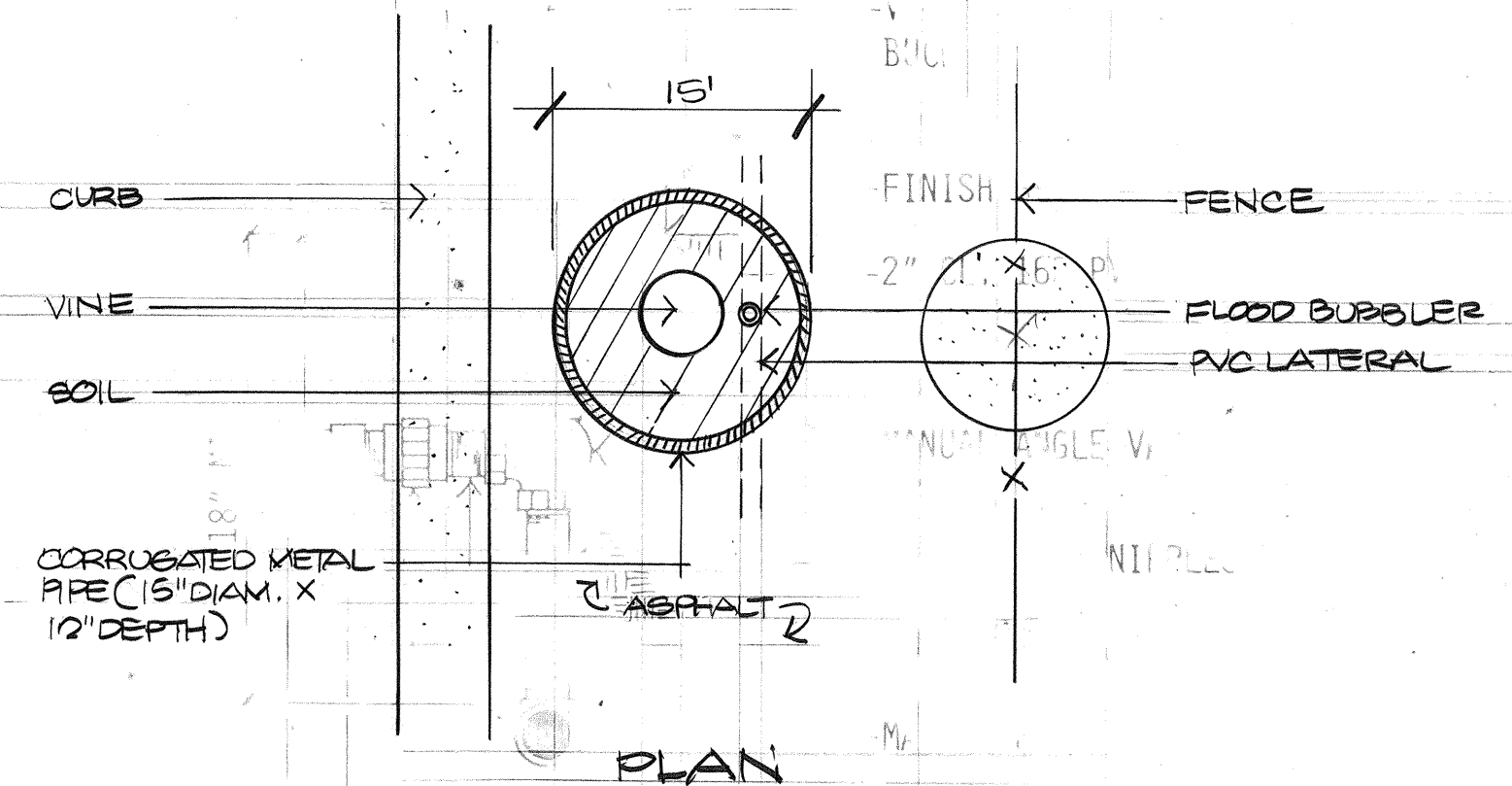
**POP-UP**  
NO SCALE

**IRRIGATION LIST AND LEGEND**

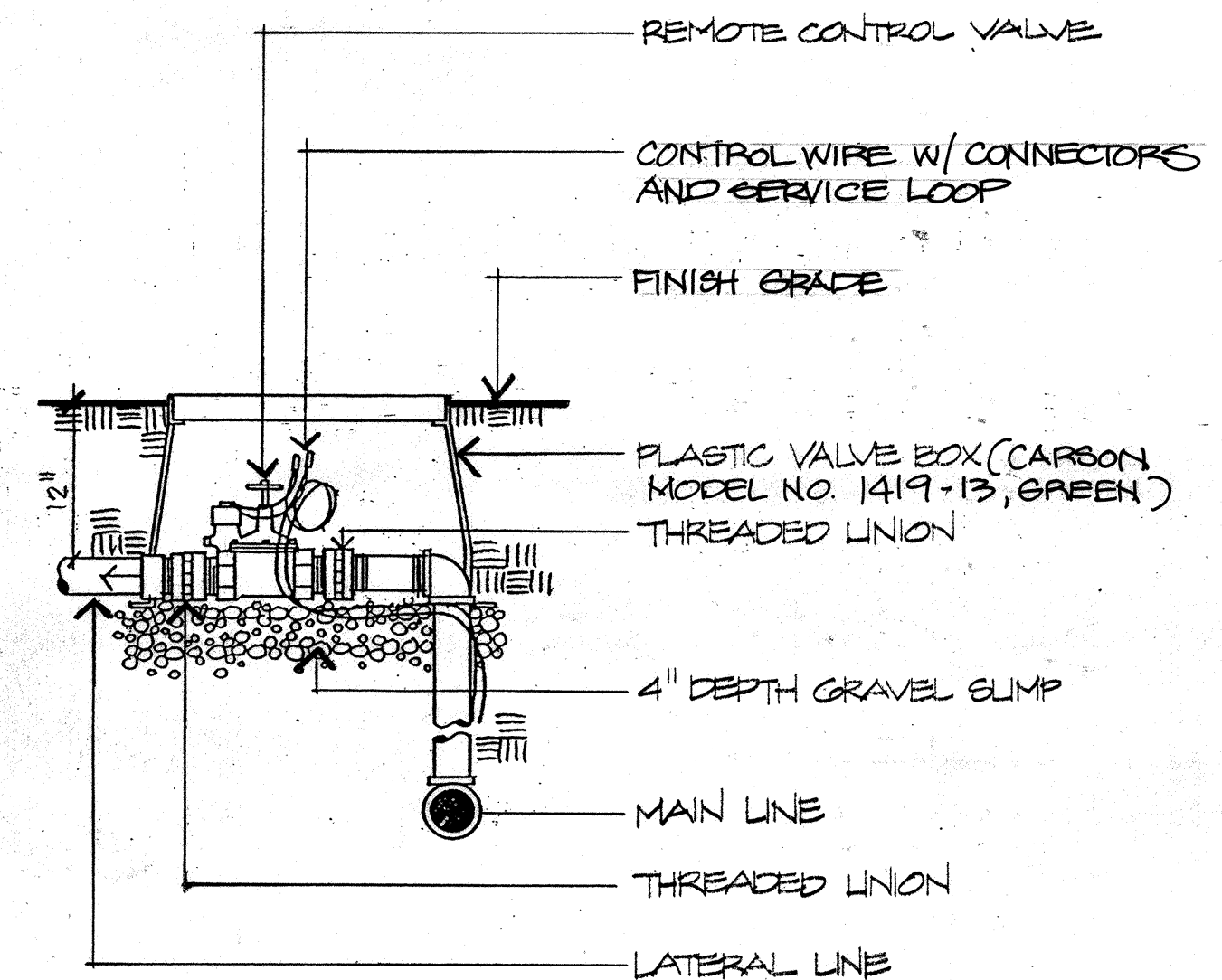
| SYMBOL | DESCRIPTION / MANUFACTURER                                                                                               | PERFORMANCE / NOTES                                                                                          |
|--------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1/2"   | STATION NO. (NUMBERING IS FOR CLARITY ONLY. CONTRACTOR TO CONNECT TO EXIST. IRRIG. VALVE ELECTRIC LINES)                 |                                                                                                              |
| 51     | VALVE SIZE                                                                                                               |                                                                                                              |
| 51     | GPM PER IRRIG. SYSTEM                                                                                                    |                                                                                                              |
| ●      | ELECTRIC, 3-WAY SOLENOID - BUCKNER 20934                                                                                 | BRONZE DIAPHRAGM                                                                                             |
| 1/2"   | IRRIGATION LATERAL AND SIZE                                                                                              | NOTE:<br>SCH. 40 (LATERALS FOR FLOOD BUBBLERS SHALL BE CLASS 200)                                            |
| ●      | BRONZE POP-UP SPRINKLERS - BUCKNER MODEL NO. 13041 W/ SPRAY NOZZLE - BUCKNER MODEL NO. 13050 - 77                        | BRONZE BODY W/ BRASS SPINDLE SEAT, 2" POP-UP HEIGHT, BRASS SPRAY NOZZLE - 1.6 GPM @ 20 PSI, 11' RADIUS, ADJ. |
| ●      | BRONZE POP-UP SPRINKLERS - BUCKNER MODEL NO. 13041 W/ SPRAY NOZZLE MODEL NO. 13050 - 83                                  | BRONZE BODY W/ BRASS SPINDLE SEAT, 2" POP-UP HEIGHT, BRASS SPRAY NOZZLE - 3.1 GPM @ 30 PSI, 15' RADIUS, ADJ. |
| ○      | ADJUSTABLE FLOOD BUBBLER - TORO FB-50-PC W/ TORO 540 F                                                                   | .5 GPM W/ PRESSURE COMPENSATING DEVICE, 2" POP-UP HEIGHT                                                     |
|        | CHECK VALVE (TORO 570) - PROVIDE AS REQUIRED TO PREVENT HEADS FROM DRAINING / ERODING GROUND AFTER SYSTEM IS TURNED OFF. |                                                                                                              |

**IRRIGATION NOTES**

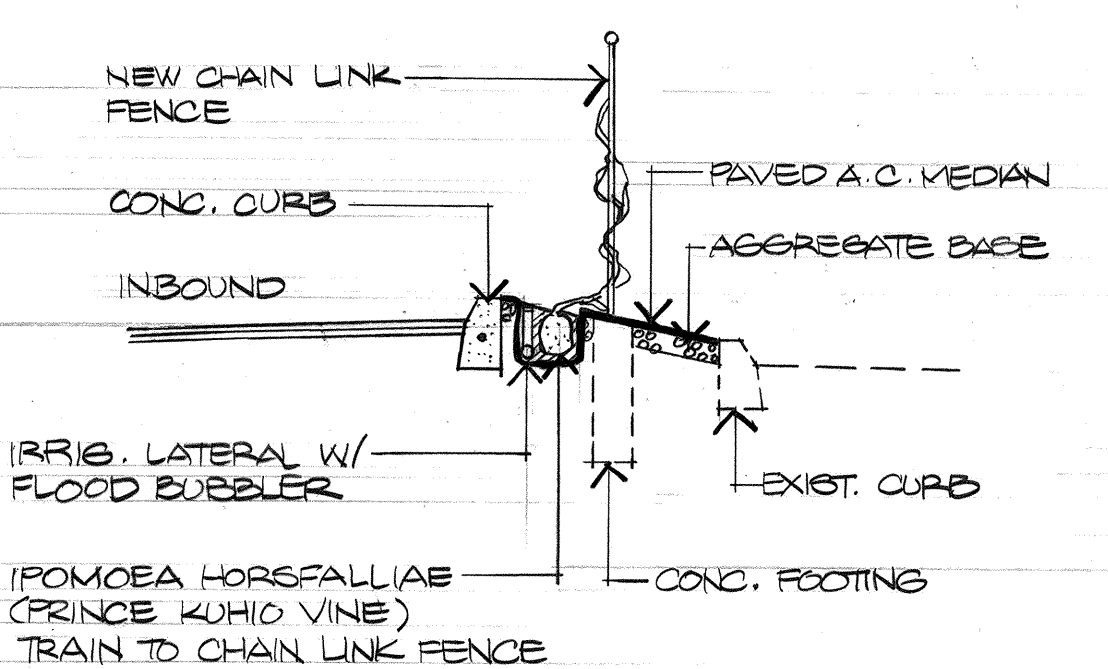
1. THE CONTRACTOR SHALL INSPECT THE SITE AND FIELD CONDITIONS PRIOR TO COMMENCING WITH THE WORK. ANY DISCREPANCIES OR UNUSUAL CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. BY COMMENCING WITH THE WORK, THE CONTRACTOR ACCEPTS THE EXISTING CONDITIONS AND RESPONSIBILITY FOR MAINTAINING THOSE CONDITIONS.
2. IRRIGATION SYSTEMS SHOWN ON DRAWINGS ARE DIAGRAMMATIC AND SUBJECT TO MINOR ADJUSTMENTS DUE TO UNANTICIPATED FIELD CONDITIONS. AVOID ANY CONFLICTS BETWEEN THE IRRIGATION SYSTEMS AND PLANTINGS, UTILITY LINES AND STRUCTURES, AND ARCHITECTURAL ELEMENTS.
3. THE CONTRACTOR SHALL TEST AND VERIFY THE ADEQUACY OF THE GPM AND WORKING PRESSURE AT THE POINT OF CONNECTION OF THE EXISTING SUPPLY LINE PRIOR TO COMMENCING WITH THE WORK. ANY DISCREPANCIES OR DEFICIENCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
4. THE IRRIGATION SYSTEMS ARE DESIGNED TO OPERATE AT THE PRESSURES LISTED FOR THE HEAD TYPES DESCRIBED IN THE LEGEND. ADJUST VALVES AS REQUIRED TO OBTAIN THE PROPER PRESSURE AT THE LAST HEAD OF EACH SYSTEM.
5. BRONZE POP-UP SPRINKLERS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONCRETE FOOTING OF THE NEW CHAIN LINK FENCE.
6. THE CONTRACTOR SHALL VERIFY THAT THE CONDITION OF THE 2" SERVICE LATERAL FROM THE EXISTING WATER METER IS ADEQUATE AND CAN BE USED FOR THE IRRIGATION SYSTEM DESIGNED.



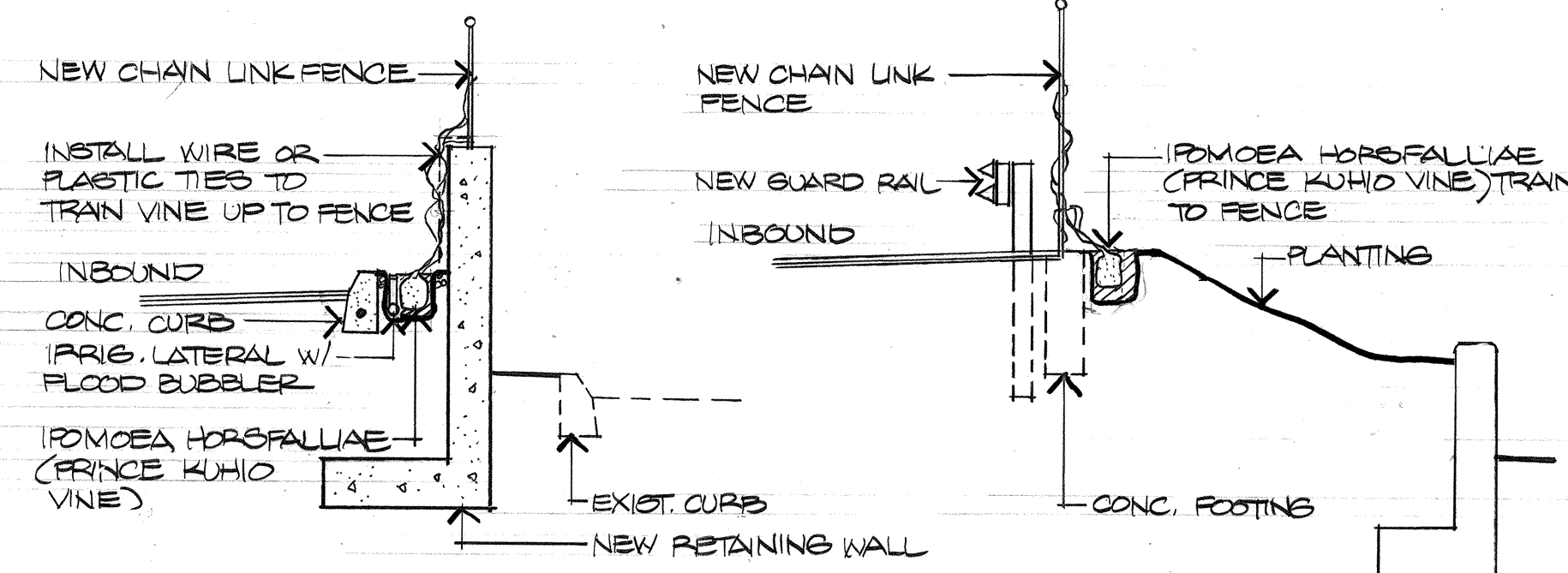
**PLANTING IN A.C. MEDIAN**  
NTS



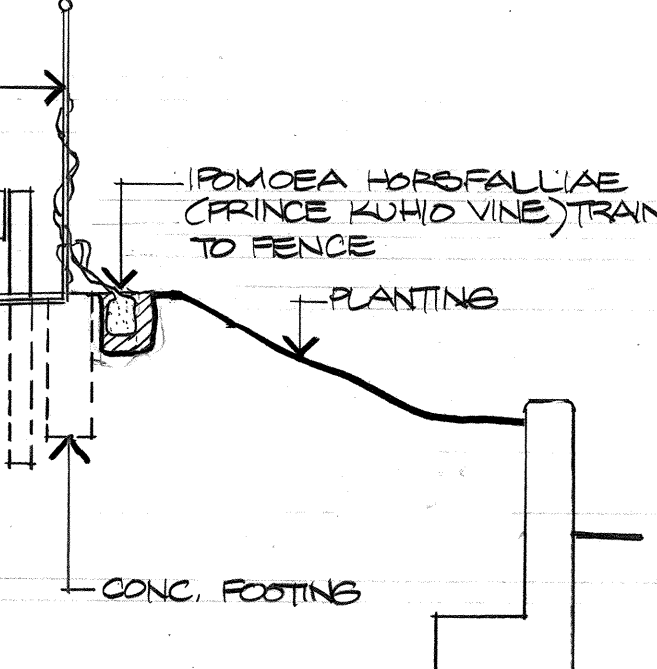
**REMOTE CONTROL VALVE**  
NO SCALE



**PAVED A.C. MEDIAN CONDITION**



**NEW RETAINING WALL CONDITION**



**ON-GRADE CONDITION**

**VINE PLANTING DETAIL**  
NTS



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

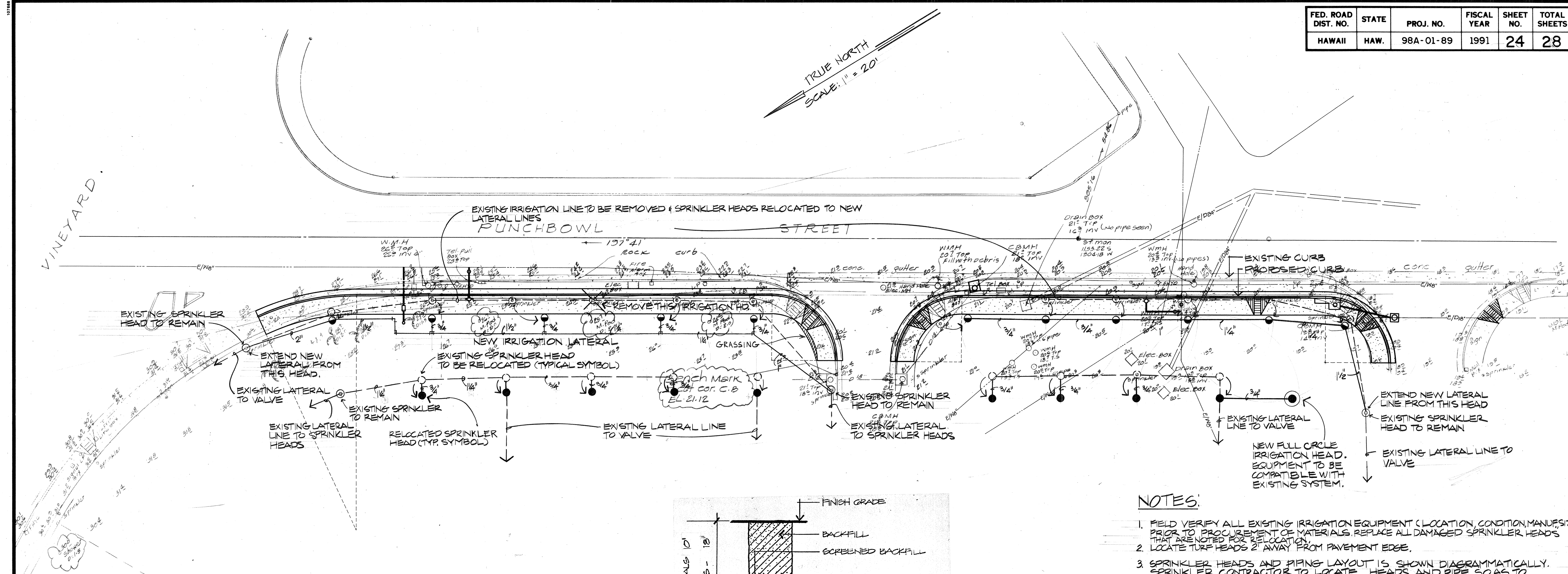
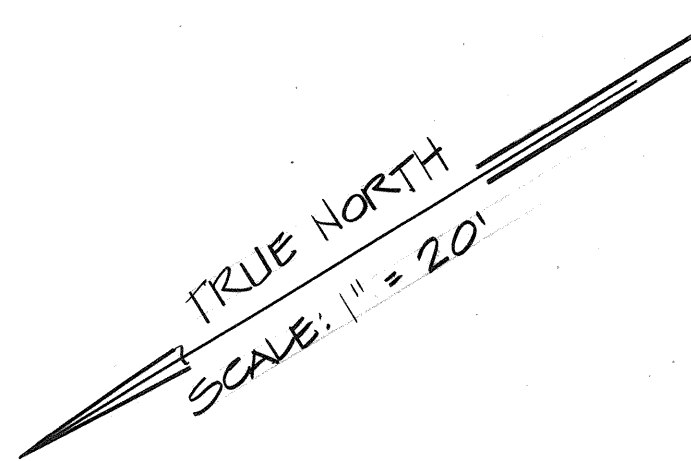
**LANDSCAPE IRR. LIST,  
LEGEND, NOTES & DETAILS**

VINEYARD - PUNCHBOWL  
TRAFFIC IMPROVEMENT PROJECT  
PROJECT NO. 98A-01-89

SCALE: AS SHOWN  
DATE: APRIL 1990  
SHEET NO. 4 OF 5 SHEETS

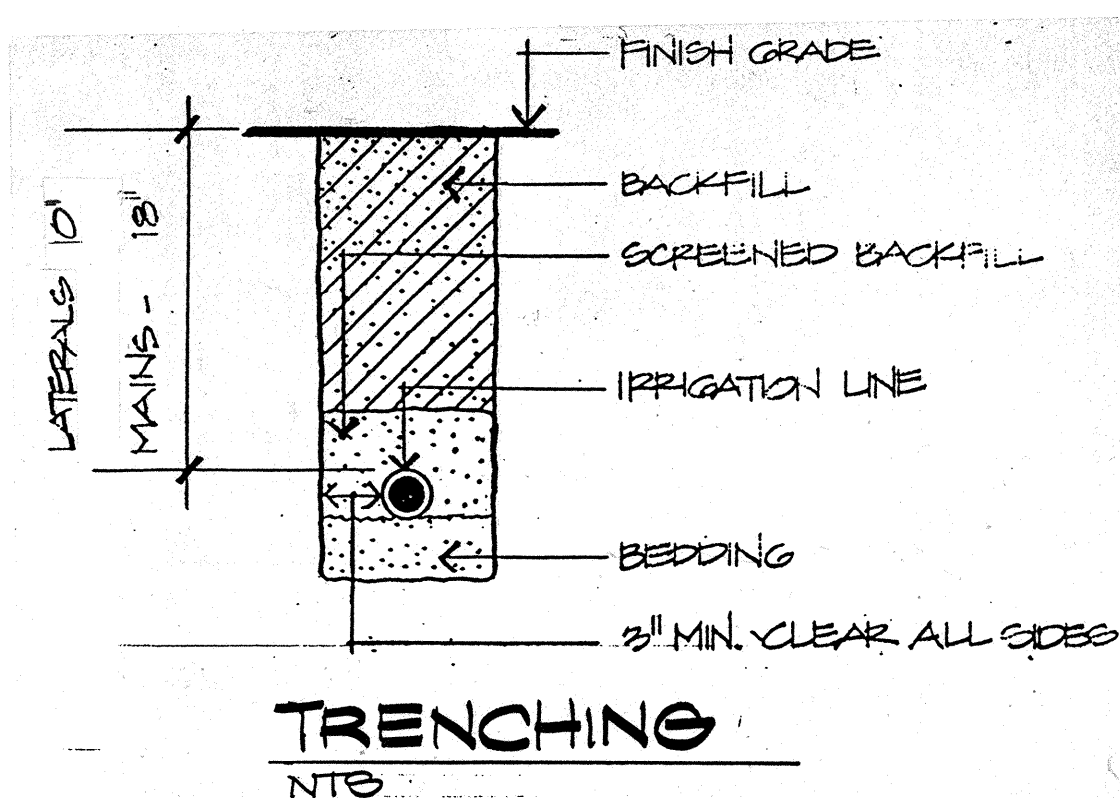
|               |  |
|---------------|--|
| DATE          |  |
| DESIGNED BY   |  |
| CHECKED BY    |  |
| NOTED BY      |  |
| ORIGINAL PLAN |  |
| NO.           |  |



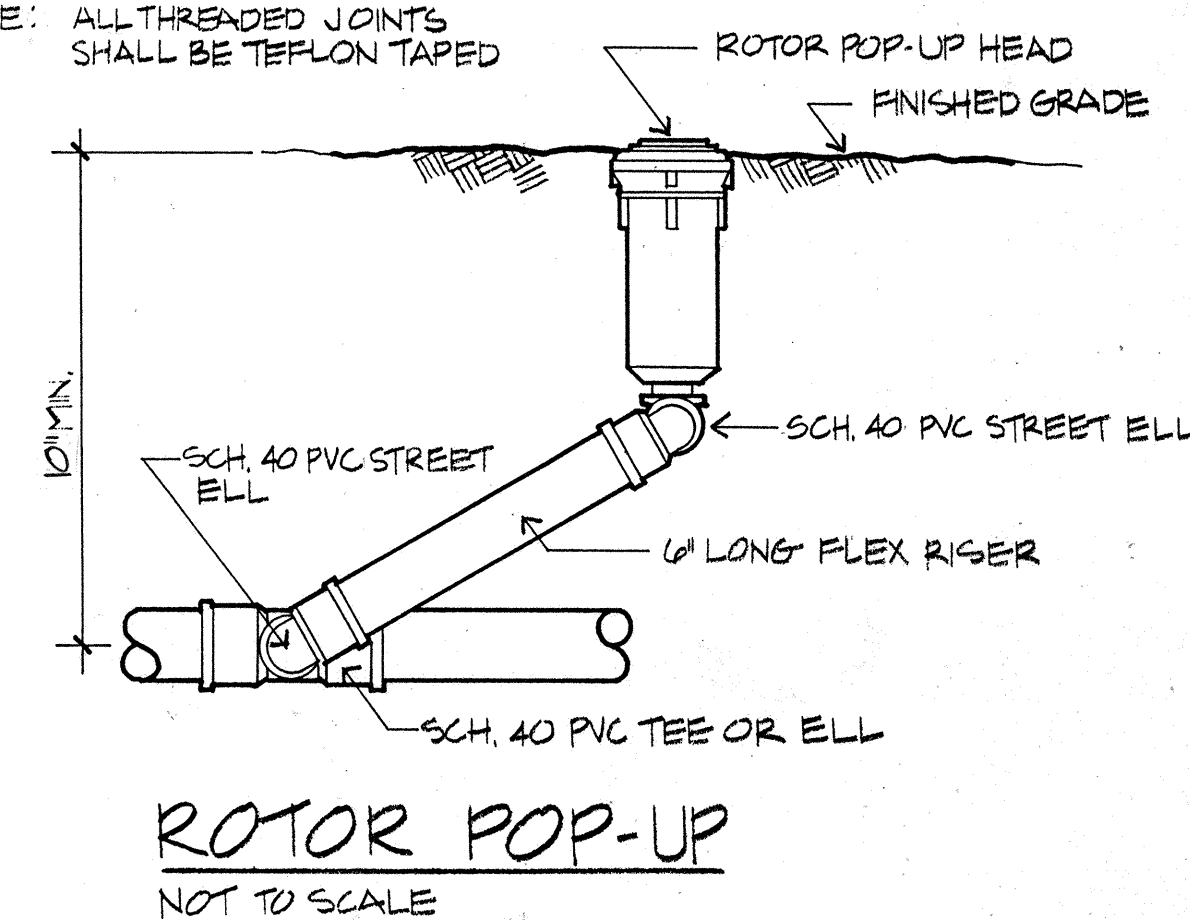


## IRRIGATION LEGEND

| <u>SYMBOL</u> | <u>DESCRIPTION</u>                            | <u>GPM</u> | <u>R&amp;D</u> |
|---------------|-----------------------------------------------|------------|----------------|
| ●             | IMPACT HEAD - FULL CIRCLE (RELOCATED)         | 4.40       | 40             |
| ◐             | IMPACT HEAD - PART CIRCLE (RELOCATED)         | 4.40       | 40             |
| ○             | SPRINKLER HEADS (TO BE RELOCATED)             |            |                |
| ---           | LATERAL LINE (TO BE REMOVED)                  |            |                |
| ---           | NEW LATERAL LINE (FOR PIPE CLASS, SEE SPECS.) |            |                |
| ---           | EXISTING LATERAL LINE (TO REMAIN)             |            |                |
| ✕             | IRRIGATION HEAD TO BE REMOVED                 |            |                |
| ⊙             | NEW IMPACT ROTOR HEAD - FULL CIRCLE           | 4.40       | 40             |



NOTE: ALL THREADED JOINTS  
SHALL BE TEFLON TAPED



NOTES:

1. FIELD VERIFY ALL EXISTING IRRIGATION EQUIPMENT (LOCATION, CONDITION, MANUFACTURE, SIZE) PRIOR TO PROCUREMENT OF MATERIALS. REPLACE ALL DAMAGED SPRINKLER HEADS THAT ARE CRACKED OR FOR RELOCATION.
2. LOCATE TURF HEADS 2' AWAY FROM PAVEMENT EDGE.
3. SPRINKLER HEADS AND PIPING LAYOUT IS SHOWN DIAGRAMMATICALLY. SPRINKLER CONTRACTOR TO LOCATE HEADS AND PIPE SO AS TO PROVIDE 100% COVERAGE AND EVEN DISTRIBUTION OF WATER.
4. RESEED DISTURBED LAWN AREAS WITH COMMON BERMUDA GRASS.
5. COORDINATE ALL WORK WITH GENERAL CONTRACTOR. CONTRACTOR TO INSTALL ACCORDING TO D.A.G.S. SPECIFICATIONS.  
  
PLUG AND CAP THE EXISTING IRRIGATION LINE PRIOR TO BEGINNING WITH NEW WORK. RETURN ALL REMOVED AND ABANDONED IRRIGATION HEADS TO THE ENGINEER.
6. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO INSURE THAT THE EXISTING MONKEYPOD TREES ALONG PUNCHBOWL STREET SHALL NOT BE DISTURBED IN ANY WAY. THE EXISTING MONKEYPOD TREES SHALL NOT BE MOVED, PRUNED OR TOUCHED BY ANY CONSTRUCTION ACTIVITY.

A circular professional seal for Alan Y. Kutsuna. The outer ring contains the name "ALAN Y. KUTSUNA" at the top and "HAWAII, U.S.A." at the bottom, separated by a five-pointed star on the left. The inner circle contains the text "REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT" and the number "No. 2747".

THIS WORK WAS PREPARED  
BY ME OR UNDER MY  
SUPERVISION.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

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**LANDSCAPE IRRIGATION PLAN**

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VINEYARD-PUNCHBOWL  
TRAFFIC IMPROVEMENT PROJECT

PROJECT NO. 98A-01-89

SCALE: AS SHOWN DATE: APRIL 1990

**SHEET No. 5 OF 5 SHEETS**